# ICCE 2016

# 24th IUPAC INTERNATIONAL CONFERENCE ON CHEMISTRY EDUCATION (ICCE) 2016

incorporating

# INTERNATIONAL SYMPOSIUM ON PURE & APPLIED CHEMISTRY (ISPAC) 2016

&

# LABASIA BORNEO 2016

# SOUVENIR PROGRAMME & EXHIBITION DIRECTORY

**15 – 20th August 2016**

**Borneo Convention Centre Kuching**
**Kuching, Sarawak, Malaysia**

# 24th IUPAC INTERNATIONAL CONFERENCE ON CHEMISTRY EDUCATION (ICCE) 2016

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# INTERNATIONAL SYMPOSIUM ON PURE & APPLIED CHEMISTRY (ISPAC) 2016

**Organised by**

INSTITUT KIMIA MALAYSIA

**Under the auspices of:**

IUPAC

**With the support of:**

MINISTRY OF EDUCATION MALAYSIA

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# Message

On behalf of the people of Sarawak, I would like to welcome all the ICCE 2016 and ISPAC 2016 delegates to Kuching, Sarawak for the 24th IUPAC International Conference on Chemistry Education (ICCE) 2016 and the International Symposium on Pure & Applied Chemistry (ISPAC) 2016 which will be held in Kuching, Sarawak, Malaysia in August 2016.

I understand that ICCE is a biennial chemistry education conference of the International Union of Pure and Applied Chemistry (IUPAC) which is being held all over the world and I am pleased that ICCE 2016 is taking place in this beautiful, people-friendly, multi-cultural and pristine City of Kuching in Sarawak, Malaysia. I understand that ICCE usually attracts a large following of chemistry and science teachers, educators and decision makers from all over the world and I am very happy to welcome more than 450 delegates from over 40 countries,

Kuching is different from most other major cities in the world. We are a people-friendly, multi-racial and multi-cultural cosmopolitan city with people of different faiths living in a peaceful, harmonious and progressive environment. Kuching is unspoiled by industrial pollution and we have sunshine and clear sky for 365 days a year. Many of our old buildings and landmarks remain in pristine condition sprinkling among modern office blocks, shopping malls, condominium, government complexes and financial institutions. We do have the best of both world.

The State of Sarawak is abundant with natural resources including oil and gas, and other agricultural produces including timber, oil palm, rubber and pepper. We are also bestowed with mega biological diversity which will remain Sarawak's main asset for centuries to come. Chemistry is a central science very much associated with new knowledge and understanding of nature and human processes. Chemical knowledge and technology are also keys to sustainable development. Sarawak will like to welcome academics and professionals in chemistry to assist us in our sustainable socio-economic development in Sarawak and improving the quality of life of our people. Please share your knowledge and expertise with our local educators and scientists to make Sarawak an advanced economy with the highest standard of living in the nearest future.

For the delegates from overseas, I would like to invite you to stay longer after the conference and enjoy beautiful and pristine Sarawak where our people are most hospitable. You may also want to do some collaborative work with our Malaysian educators and make Malaysia the base of your work and research.

With that, I wish you a successful and rewarding conference. Please enjoy your stay in Sarawak.

**YAB Datuk Patinggi Tan Sri (Dr) Haji Adenan Bin Haji Satem**
Chief Minister of Sarawak

# Message

The Institut Kimia Malaysia (IKM) was honoured to be given the opportunity by the International Union of Pure and Applied Chemistry (IUPAC) to organize the International Conference on Chemistry Education in 2016, or ICCE 2016. ICCE is a major international chemistry education conference of IUPAC that is being held biennially all over the world. When given the task, I was at first apprehensive if IKM would be able to deliver. My concern is now proved to be unfounded and unwarranted.

The organising committee under the leadership of Datuk Dr Soon has, against all odds, organised the ICCE 2016 in a very grand manner. Besides, the IKM Sarawak Branch in conjunction with its 30th Anniversary Celebrations is also organising the International Symposium on Pure and Applied Chemistry (ISPAC 2016) with the support of the Foundation of Interaction of Science and Technology (FIST), Japan. The response to the ICCE 2016 and the ISPAC 2016 has been overwhelming. On behalf of IKM, I would like to acknowledge the good work of the organising committee, supported by the IKM Sarawak Branch, and also to extend a very warm welcome to all the participants of ICCE 2016 and ISPAC 2016 to this lovely city of Kuching, Sarawak.

Malaysia is blessed with abundance resources of oil and gas, oil palm and rubber. The role of chemistry is therefore important in the development of resource based manufacturing sectors. The country must therefore have a proper chemistry education system to provide the well-trained manpower needed for the development of chemical and petrol chemicals, oleo-chemicals and rubber product industries. Effective chemistry education is imperative to attract students at the primary and secondary levels to have an interest in Science and in the topics of chemistry. At universities, the chemistry education system must be such that the students are empowered to identify and grow their passion in chemical science rather than one that constrains the mind to score A's in examination only. The chemistry education system must prepare graduates that can shape the country's future.

School teachers and university lecturers therefore have a major responsibility to prepare the students that society and industries expect. Science teachers and lecturers must be empowered through better training in order to better fulfil the needs. I hope by bringing the ICCE 2016 to Malaysia, we will be one-step closer in achieving our goal. Our speakers will provide us with the strategies and guidance. To all the speakers, thank you for your contributions and willingness to share with us your experience.

With the support of the IKM-Tan Sri Law Hieng Ding Foundation and Lee Foundation, 50 teachers from Sarawak schools and 20 teachers from Peninsular Malaysia are provided with complimentary registration to attend ICCE 2016. Some students, undergraduates, teachers and lecturers are also invited to attend the IUPAC Young Ambassador for Chemistry (YAC), and Microscale Laboratory Training for schools and universities. I sincerely hope that our initiative will snowball into better things to come.

I must record my sincere appreciation to the Chief Minister of Sarawak, YAB Datuk Patinggi Tan Sri (Dr) Haji Adenan Bin Haji Satem for supporting the idea to have the conferences held in Kuching and to officiate the Opening Ceremony of ICCE & ISPAC 2016 at the Borneo Convention Centre, Kuching, Sarawak.

I also wish to thank the Sarawak State Government, the Sarawak Education Department, Sarawak Convention Bureau (SCB) and Malaysian Convention and Exhibition Bureau (MyCEB), the IUPAC, the Foundation of Interaction of Science and Technology (FIST), Japan and many other Institutions and individuals for their support to ICCE & ISPAC 2016.

Once again, special appreciation is due to the organising committee of ICCE 2016 and the Committee of IKM Sarawak Branch for successfully organised the ICCE 2016 and ISPAC 2016.

Thank you.

**Dato Dr Ong Eng Long**
President, Institut Kimia Malaysia

# Message

On behalf of ICCE & ISPAC 2016 National Organising Committee, I would like to extend a very warm welcome to all ICCE 2016 and ISPAC 2016 delegates to Kuching, Sarawak for the 24th IUPAC International Conference on Chemistry Education (ICCE) 2016 and the International Symposium on Pure & Applied Chemistry (ISPAC) 2016.

First, we are indeed honoured that the International Union of Pure and Applied Chemistry (IUPAC) had given us the chance to host ICCE 2016 in Kuching, Malaysia. It is thus our business to make ICCE 2016 an excellent education meeting with participation from all over the world. We are therefore very happy that ICCE 2016 received strong support from chemistry and science teachers, educators and decision makers worldwide. Together with ISPAC 2016, we have close to 300 oral and poster presentations with 9 plenary lectures by Nobel Laureate and top educators and scientists from all over the world.

On behalf of the Organisers, I want to record our sincere appreciation to the Chief Minister of Sarawak, YAB Datuk Patinggi Tan Sri (Dr) Haji Adenan Bin Haji Satem, for officiating the Opening Ceremony of ICCE 2016 and the strong support of the Sarawak Government. We would also to thank Sarawak Convention Bureau (SCB) and the Malaysia Convention and Exhibition Bureau (MyCEB) for their support in the bidding and management of ICCE 2016. To the other major sponsors including Tan Sri Law Hieng Foundation, Lee Foundation, Chemsain Konsultant Sdn Bhd and KISM Sdn Bhd, we would like convey our utmost sincere gratitude and appreciation for their strong support.

On behalf of IKM, I would also like record our thanks and appreciation to all the collaborating organisations including Academy of Sciences Malaysia (ASM), Chemistry Department Malaysia (JKM), Universiti Malaysia Sarawak (UNIMAS), Universiti Malaya (UM), Universiti Putra Malaysia (UPM), Universiti Kebangsaan Malaysia (UKM), Universiti Teknologi Malaysia (UTM), SEAMEO Regional Centre for Education in Science and Mathematics (RECSAM) and University College Tunku Abdul Rahman (TARUC). Their involvement and collaboration have made ICCE 2016 a truly national educational and academic effort in promoting educational and academic excellence.

As Chairman of the National Organising Committee (NOC) of ICCE & ISPAC 2016, I am personally indebted to members of NOC who have worked so hard to put everything together to make a successful ICCE & ISPAC 2016. To members of the International Advisory Committee (IAC) and the National Advisory Board, (NAB), we are really grateful to them for their advice and technical inputs to the programmes of both ICCE and ISPAC 2016.

The success of ICCE & ISPAC 2016 is largely due to the delegates including the Plenary Speakers, oral and poster presenters and the other participants. Last but not least, I am very much indebted to ICCE & ISPAC 2016 Secretariat staff who have worked tirelessly to make ICCE & ISPAC 2016 possible. To them, I owe them a big THANK YOU.

With that, I wish all the delegates a successful and rewarding conference. Please also enjoy your stay in Sarawak.

**Datuk Dr Soon Ting Kueh**
Chairman, ICCE & ISPAC 2016 National Organising Committee

*Opening Ceremony*

# 24th IUPAC International Conference on Chemistry Education (ICCE) 2016

## PROGRAMME

0800 Arrival of ICCE2016 Delegates

0830 Arrival of Invited Guests

0845 Arrival of Guest-of-Honour
Y.A.B. Datuk Patinggi Tan Sri (Dr) Haji Adenan Bin Haji Satem
Chief Minister of Sarawak

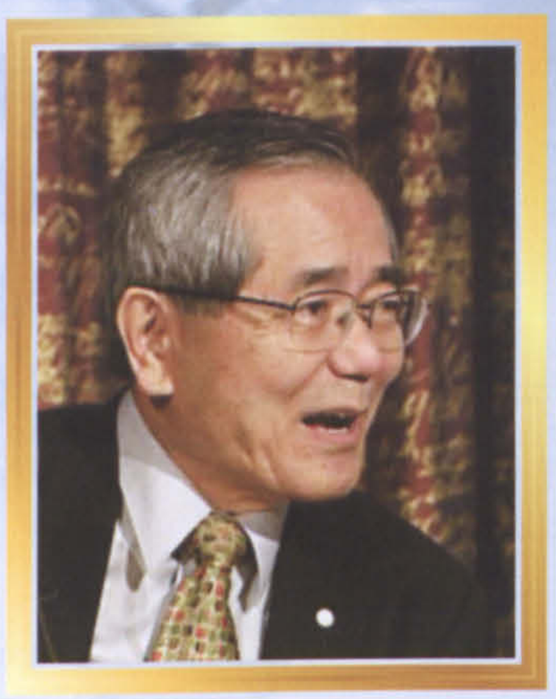
0900 Welcome Address
Datuk Dr Soon Ting Kueh
Chairman, ICCE2016 Organizing Committee

0910 Address
Dato' Dr Ong Eng Long
President, Institut Kimia Malaysia

0920 Address
Dr Mark C Cesa
Immediate Past President, International Union of Pure and Applied Chemistry

0930 Opening Address
Y.A.B. Datuk Patinggi Tan Sri (Dr) Haji Adenan Bin Haji Satem
Chief Minister of Sarawak

1000 Refreshment / Media Conference



**Prof. Ei-ichi Negishi**

*Purdue University, USA*

Ei-ichi Negishi, H. C. Brown Distinguished Professor of Chemistry, Purdue University, grew up in Japan and received his Bachelor's degree from the University of Tokyo in 1958. From 1958-1966, while working as a Research Chemist at Teijin, Ltd., Japan, Negishi spent 3 years (1960-1963) as a Fulbright-Smith-Mund Scholar at the University of Pennsylvania and obtained his Ph.D. in Chemistry. In 1966, he joined Professor H. C. Brown's Laboratories at Purdue as a Postdoctoral Associate and was appointed Assistant to Professor Brown in 1968. Negishi went to Syracuse University as Assistant Professor in 1972 and began his life-long investigations of transition metal-catalyzed organometallic reactions for organic synthesis. Negishi was promoted to Associate Professor at Syracuse University in 1976 and invited back to Purdue University as Full Professor in 1979. In 1999 he was appointed the inaugural H. C. Brown Distinguished Professor of Chemistry. He has received various awards, with the most representative being 1987 J.S. Guggenheim Fellowship, 1996 Chemical Society of Japan Award, 1998 ACS Award in Organometallic Chemistry, 1998–2001 Alexander von Humboldt Senior Researcher Award, Germany, 2000 Sir Edward Frankland Prize, Royal Society of Chemistry, UK, 2007 Yamada-Koga Prize, Japan, 2010 ACS Award for Creative Work in Synthetic Organic Chemistry, 2010 Japanese Order of Culture, 2010 Nobel Prize in Chemistry, 2010 UK Royal Society of Chemistry Honorary Fellowship Award, 2011 Fellow of the American Academy of Arts and Sciences, and 2014 elected into the National Academy of Sciences as a Foreign.

## Pursuit of My Dreams for Half-a-Century

**Ei-ichi Negishi**

*Purdue University*

The statistical odds of winning a Nobel Prize may be estimated to be 1/10,000,000 or $1/10^7$. One way of looking at this infinitesimally small figure is to think of it as winning "one-in-ten" competitions seven times in a row. For example, as one of the top few in a class of a few hundred students, you may already be $1/10^2$ or so. Your competition level must continuously move up. After winning the fifth- or sixth-level competition, you may already be vying for a Nobel Prize or something equivalent to it in some other area.

In this lecture, I shall reminisce how I might have climbed up seven steps of increasingly challenging competitions over 75 years to be finally recognized with a 2010 Nobel Prize in Chemistry.

**Prof. Peter Atkins**

*University of Oxford, England*

Peter Atkins was professor of physical chemistry at the University of Oxford until his retirement in 2007. His research field was theoretical chemistry, but he also wrote numerous books, both college textbooks and books on science for the general public. They now number over 70 and are used throughout the world. He continues to write and lecture worldwide. He was the founding chairman of IUPAC's Committee on Chemistry Education.

## Sustainability through attainability

**Peter Atkins**

*University of Oxford, England*

The propagation of chemistry and the sustainability of its contribution to and demands on the environment depends not only on the education of students but of the general public. Both must have patience: the speaker on account of the abstract nature of so many of chemistry's concepts, and the listener on account of the long distance to travel between fundamental concept and everyday application. One way to proceed is to identify the few core ideas that lie at the heart of chemistry, and to find ways to present them convincingly, probably pictorially, and simply. This talk explores how that might be achieved.

## Prof. Marcy Towns

*Purdue University, USA*

Professor of Chemistry, Purdue University, USA
Associate Head of Chemistry and Director of General Chemistry
Ph. D., Purdue University 1994
Fellow of the American Chemical Society, 2012
Fellow of the American Association for Advancement of Science, 2009

Dr. Marcy Towns is a Professor of Chemistry, Associate Department Head, and Director of General Chemistry at Purdue University. She is a Fellow of the American Association for the Advancement of Science (AAAS) 2009, and a Fellow of the American Chemical Society (ACS) 2012. She received the Society of College Science Teachers and National Science Teacher's Association 2015 Outstanding Undergraduate Science Teaching Award. She has won Purdue University's most prestigious honors for teaching including The Class of 1922 Outstanding Innovation in Helping Students Learn Award (2015) and the Charles B. Murphy Outstanding Undergraduate Teaching Award (2013). She also received the chemistry department's most prestigious honor for teaching, the Arthur B. Kelly Award in 2013. She has held a number of elected and appointed positions in American Chemical Society's (ACS) Division of Chemical Education including the Chair in 2015 and a 9-year membership on the ACS Examinations Institute Board of Trustees. She has over 60 publications, over 1100 citations, and over 100 international and national presentations. She is an Associate Editor for the Journal of Chemical Education, one of the top journals in her field, focusing on manuscripts pertaining to chemistry education research.

Marcy has been the PI or Co-PI of a number of discipline based education grants, including National Science Foundation CCLI and TUES grants which fund and support her group's research on undergraduate chemistry laboratory, and student understanding of thermodynamics, undergraduate laboratory, and the chemistry of climate science.

### Faculty and Student Goals for Undergraduate Laboratory: The Conflict Between Hands-on Skills, Critical Thinking, and Efficacy

**Marcy Towns**
*Purdue University, USA*

The Towns research group has carried out a program of research focusing on determining faculty and student goals for laboratory. The faculty perspective has been investigated via a mixed methods study to articulate the goals, strategies, and assessments used in undergraduate teaching laboratories. The results have allowed us to discuss faculty goals across the curriculum with an understanding of broader goals such as critical thinking skills and experimental design, and as well as differentiating across the curriculum where faculty in place less emphasis on research like experiences and writing skills in general chemistry than other courses in the chemistry curriculum. Additionally, we have investigated the student perspective of laboratory discovering the circumstances under which students are more inclined to be efficacious in their efforts that led to behaviors and actions that are not in alignment with faculty goals, and circumstances under which they are in better alignment.

As a result of our research, we have developed, implemented, and assessed a digital badging approach to improve student hands-on laboratory. The project allows students to creatively demonstrate their learning and will allow for individual student feedback on hands-on laboratory skills in a large lecture courses.

Dr. Rachel Mamlok-Naaman

*The Weizmann Institute of Science, Israel*

Dr. Rachel Mamlok-Naaman earned her BSc in chemistry from the Hebrew University in Jerusalem (1966), her MSc and PhD in Science Education from Bar Ilan (1992 and 1998 respectively). After conducting her postdoctoral research at the University in Michigan (2000) she joined the Weizmann Institute of Science in the Department of Science Teaching, where she is the head of the National Center for Chemistry Teachers, and the coordinator of the chemistry group at the Department of Science Teaching.

Dr. Mamlok-Naaman is engaged in development, implementation, and evaluation of new curricular materials, and research on students' perceptions of chemistry concepts and professional development of chemistry teachers. She also focuses on production of publications in the areas of teachers' professional development, cognitive aspects of students' learning, assessment and curriculum development. In her work, she uses the experience which she gained as a chemistry teacher who toughed high school students for 26 years. She is the coordinator of chemistry teachers' programs in the framework of the Rothschild-Weizmann MSc program for science teachers, and of projects in the framework of the European Union (the FP7 programs) in Israel – PROFILES (which ended July 2015), and TEMI. In addition, she is the formal representative of the Israel Chemical Society to the various international organizations of Chemistry Education, including the IUPAC CCE and the EuCheMS DivCED, and a member of editorial and advisory boards of journals and organizations of science education.

## Models of Life Long Learning Professional Development of Teachers

**Rachel Mamlok-Naaman**

*The Weizmann Institute of Science, Israel*

Based on research findings, teachers who attend continuous development professional development (CPD) workshops, are more satisfied with their teaching, and have a closer contact with academic and education institutions on a professional basis. In addition, they get a sustained and continuous support, they feel a sense of ownership regarding their involvement in the education system, and became more concerned about improving their practice and learn how to share their ideas and experiences with their colleagues. They will: (1) get acquainted with developments in science and with innovative curricular materials and innovative teaching strategies, (2) undergo a proper professional preparation in order to implement new curricular materials, and (3) continue to get the needed guidance and support while implementing new curricular materials. This paper discusses various models of professional development. Each of the models is unique, has its own educational goals and addresses different kinds of teacher population: (1) Leadership workshops for teachers, aimed explicitly for future teacher leaders in science education, (2) Action research, connecting research and practice, (3) Evidence-based professional development, and (4) Teachers as curriculum developers, which include bottom-up initiatives. The various models of professional development enable teachers to choose the ones which match their needs at a certain stage in their career, and that are in alignment with the educational system demand.

**Prof. Mei-Hung Chiu**

*National Taiwan Normal University, Taiwan*

Mei-Hung Chiu is a Professor of Science Education at the Graduate Institute of Science Education (GISE) of the National Taiwan Normal University (NTNU). She has a BS in chemistry (National Taiwan Normal University), Ed.M. and Ed.D. from Harvard University. She taught as a physical science and chemistry teacher in secondary schools for three years before serving as a science education researcher and professor at the university level. She has published articles about chemistry curriculum, students' conceptual understanding and changes as well as mental models in science learning in international well-known journals, such as Journal of Research in Science Teaching (JRST, SSCI journal), International Journal of Science Education (IJSE, SSCI journal), International Journal of Science and Mathematics Education (IJSME, SSCI), Chemical Education Theory and Practice (CERP, SSCI), Journal of Chemical Education (JCE, SCI/SSCI), British Journal of Educational Technology (BJET, SSCI), and co-edited books (such as Celebrating the 100th Anniversary of Madame Marie Sklodowska Curie's Nobel Prize in Chemistry, Science Education Research and Practice in Asia, and Science Education Research and Practice in Taiwan).

Dr. Chiu was an Associate Editor (2010-2014) of Journal of Research in Science Teaching (JRST), and Chair of Committee on Chemistry Education (CCE) of IUPAC (2012-2015). She is also engaged in international projects sponsored by CCE of IUPAC, such as Young Ambassadors for Chemistry to promote public understanding of chemistry and Flying Chemistry Educators Program to provide innovative teaching and learning for emergent countries. She was a recipient of the Distinguished Contribution to Chemical Education Award from the Federation of Asian Chemical Societies (FACS) in 2009. She was also recognized by Marquis Who's Who in Asia (1st edition) in 2007 and Marquis Who's Who in the World (26th edition) in 2009. She is also continuously recognized as an outstanding scholar by receiving research grants and special financial support awards in Taiwan over the past years.

In sum, Dr. Chiu published more than 100 peer reviewed journal articles in English and in Chinese, over 150 conference presentations (in English), four edited books (in English), more than 30 plenary/keynote speeches, and supervised 85 advisees to receive their advanced degrees (18 in PhD and 67 in MS) in science education.

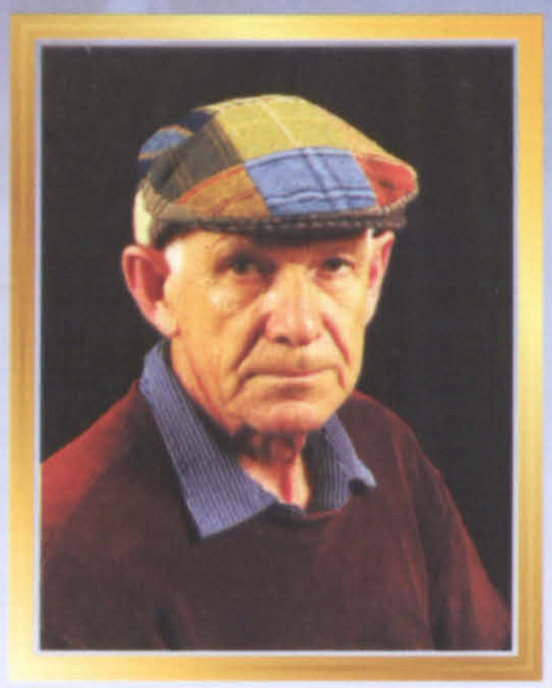
## Globalization of chemistry education: Comparison of K-12 Chemistry Standards across the World

**Mei-Hung Chiu**
*National Taiwan Normal University*
*Graduate Institute of Science Education*
*mhchiu@ntnu.edu.tw*

Globalization of science related knowledge and practice plays a significant role in supporting and reinforcing economic, cultural, and technological globalization. To better prepare the next generation for the 21st century and beyond, school science education must improve student learning and increase their motivation for learning science. Many countries across the world are moving their curriculum standards towards eliciting students' scientific literacy via development of basic (or core) idea, crosscutting concepts and practice (e.g., Next Generation Science Standards, NGSS) Chemistry education, of course, is no exception.

To reflect on the issues of development of basic ideas and practice in school science curriculum, my talk today will illustrate the types and level of chemistry literacy that kindergarten, elementary, and secondary school students need to develop during their school years. Specifically, analysis of chemistry curriculum standards for K-12 across countries was conducted which had four facets, namely, phenomenon (macroscopic), model (structure or microscopic), and symbolic representations, and context (practice). The countries involved included the followings: Chile, Israel, Japan, Malaysia, New Zealand, Taiwan, Turkey, and the US. The results revealed curriculum design for students' progressive development from phenomena in the lower grades (before 5th or 6th grade), to symbolic descriptions linking preliminary models or structures in the middle grades (grades 7-9), and then to more in-depth symbolic descriptions at the atomic and molecular levels of the structures in grades 10-12. However, even with such a common trend of curriculum standards, various designs and expectations from each nation were also revealed. Such a phenomenon not only accentuated both the similarities and the differences in chemistry education but also highlighted the challenges and the opportunities of chemistry education across the world. With this in mind, localizing while also globalizing, or in short, GLOCALING, should be one of the foci that chemistry educators must attend to.

**Acknowledgement**
The speaker wish to thank the members of IUPAC Committee on Chemistry Education, namely Suzanne Boniface, Masahiro Kamata, Leontina Lazo Samtibahz, Rachel Mamlok-Naaman, Soo Boon Ng, and Mustafa Sozbilir. This work was supported in part by grants from the IUPAC Project grant (2013-022-2-050) and Ministry of Science and Technology in Taiwan (102-2511-S-003 -006 -MY3).



## Prof. Robert (Bob) Bucat

*The University of Western Australia, Australia*

Born in the same year as Dmitri Mendeleev, Bob is an Honorary Teaching Fellow in the School of Chemistry and Biochemistry at the University of Western Australia. Once a physical chemist, he turned to scholarship in chemistry education. Motivated by an intense curiosity about what was happening "on the other side" of the lectern or lab bench, he has been driven to understand the teaching and learning process from the student perspective.

His research interests are primarily on undergraduate students' understandings of chemical concepts and relationships, and their origins in curriculum structure, the complexity and interdependence of chemistry, the language usage, the demands of the triplet, the need for appropriate imagery at several levels, and the balance of understandability and rigour. His passion is the umbrella interest that includes all of these: pedagogical content knowledge. In 1988, Bob was awarded the inaugural Distinguished Teaching Award of the University of Western Australia, open to teachers in all faculties of the university. At the national level, Bob has received several awards: in 1987, the Medal of the Royal Australian Institute Chemical Education Division; in 2007, the Carrick Award from the Australian Government as a member of the Advancing Chemistry by Enhanced Learning in the Laboratory (ACELL) project team; in 2010, the inaugural Fensham Medal, The RACI Award for Outstanding Contribution to Chemical Education. In 2011 in celebration of the International Year of Chemistry, the RACI proclaimed him a Living Luminary of Australian Chemistry.

Bob was a titular member (1994-2002) of IUPAC's Committee of Teaching of Chemistry, later the Committee on Chemical Education. For his international contributions, at the joint ICCE/ECRICE meeting in Rome, July 2012, Bucat was presented with the IUPAC Distinguished Contribution to Chemistry Education Award. He is currently a co-organiser and presenter of a series of international workshops for chemistry teachers held in Croatia, and is a supervisor in the PhD program at the University of Split, Croatia. He is graced by 13 grandchildren, to whom he is GrandBob.

### Motivation and the undergraduate chemistry student

**Robert (Bob) Bucat**

*The University Of Western Australia, Australia*

If we solve the problem of motivating students, we solve all educational problems. Let's admit that we will never "solve the problem of motivating students". However, through our decisions and actions we might be able to enhance motivation, or even to minimise de-motivation. Some of the conditions for high motivation are external to the classroom and the institution. Nevertheless, decisions about curriculum and the conduct of the curriculum (how we teach and assess the subject matter) surely have some influence. In this presentation, I will urge that in making some of our curricular decisions we should try to see the consequences through the eyes of the students, instead of (or, to some degree, as well as) from the perspective of the expert (the professor). How might this shape the chemistry curriculum of a particular undergraduate chemistry course?

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# ICCE 2016

## Special IUPAC Plenary Session on

# Global Launch of an IUPAC Interactive Electronic Isotopic Periodic Table and Supporting Resources

**Date**
Wednesday, 17th August 2016

**Time**
9.00 - 10.00 am

## PROGRAMME

**Chairman**
**Datuk Dr Soon Ting-Kueh**

0900 Arrival of ICCE 2016 Delegates and Invited Guests

0905 Welcome by Dato' Dr Ong Eng Long, President, IKM

0910 Address by Dr Mark C Cesa, Immediate Past President, IUPAC

0915 Introduction and Global Launch by Prof Peter G Mahaffy and Prof Norman E Holden

0950 Remarks by Dr Richard Hartshorn, Secretary General, IUPAC

0955 Presentation of ICCE Participation Certificates

1000 Refreshments

This Plenary Session is open to all ICCE 2016 delegates and invited guests.

## *Introducing Isotopes Matter and the New Interactive Electronic IUPAC Periodic Table of the Elements and Isotopes.*

Peter G Mahaffy, Mckenzie Oliver, Tyler DeBoon, Rachel Hislop-Hook, and Brian E. Martin, King's Centre for Visualization in Science and Chemistry Department, the King's University, Edmonton, Alberta, Canada T6B 2H3; Tyler B. Coplen, U.S. Geological Survey, Reston, VA 20192; Norman E. Holden, National Nuclear Data Center, Brookhaven National Laboratory, Upton, New York 11973

This session will feature the global release at the 2016 ICCE of the new interactive electronic version of the IUPAC Periodic Table of the Elements and Isotopes, created by an IUPAC project team. The interactive, electronic periodic table will be available both as a stand-alone "app" and also embedded in a set of guiding interactive educational resources, called *Isotopes Matter*. *Isotopes Matter* guides students, teachers, and the public through the new interactive periodic table and helps them see how chemists use experimental evidence from mass spectrometry to obtain the information listed on the periodic table about isotopes and atomic weights.

In workshops and discussions with educators it has become evident that students and teachers experience a great deal of confusion when seeking values of atomic weights, which are listed as intervals. Atomic weights of twelve elements are listed as intervals on the tables of standard atomic weights IUPAC has released since 2009. Hydrogen, for example, was formerly listed with a single value for its atomic weight of 1.0079, which students could readily use in calculations of molar masses of compounds. But on the new IUPAC periodic table, it is shown as the interval [1.007, 1.009], an interval between two numbers. Students and teachers wonder what causes this isotopic variability, and they wonder why atomic weights for some elements are not constants of nature. The Interactive Electronic Periodic Table of the Elements and Isotopes and *Isotopes Matter* guide users through explanations and offer opportunities to introduce important applications of isotopes to fields such as medicine, forensics, and climate studies, including making proxy measurements of climate using isotopes.

Ötzi, the well-preserved 5,300 year old frozen mummy found on a melting glacier in the Ötztal Alps (along the Austrian-Italian border) provides a relevant example of why variable atomic weights are part of the new periodic table. Data about the ratios of amounts of Ötzi's Pb, Sr, and O isotopes played a crucial role in the work by forensic scientists to determine where he lived. Ötzi is one entry point for the *Isotopes Matter* resources that guide users through the new interactive, electronic version of the IUPAC Periodic Table of the Isotopes and Elements.
Bring a laptop along to this session if you'd like to explore the new resources.

# ICCE 2016

# Programme

| Tuesday, August 16, 2016 | |
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| Venue: Hall A | |
| **0900 – 1000** | Opening Ceremony |
| **1000 – 1030** | Refreshments |
| **Chairman:** | **Dato' Dr. Ong Eng Long**<br>**Institut Kimia Malaysia, Malaysia** |
| **1030 – 1115** | Plenary Lecture 1<br>**Pursuit of My Dreams for Half-a-Century**<br>Ei-ichi Negishi<br>*Purdue University, USA* |
| **Chairman:** | **Prof. Dr. Ho Chee Cheong**<br>**Institut Kimia Malaysia, Malaysia** |
| **1115 – 1200** | Plenary Lecture 2<br>**Sustainability through attainability**<br>Peter Atkins<br>*University of Oxford, England* |
| **Chairman:** | **Prof. Dr. Yang Farina Abdul Aziz**<br>**Universiti Kebangsaan Malaysia, Malaysia** |
| **1200 – 1245** | Plenary Lecture 3<br>**Faculty and Student Goals for Undergraduate Laboratory: The Conflict Between Hands-on Skills, Critical Thinking, and Efficacy**<br>Marcy Towns<br>*Purdue University, USA* |
| **1300 – 1400** | Lunch |
| Technical Session:<br>**Public awareness /Appreciation of chemistry and International Chemistry Olympiad** | |
| Venue: Hall A | |
| **Chairman:** | **Assoc Prof Dr Juan Joon Ching**<br>**Universiti Malaya, Malaysia** |
| **1400 – 1420** | PAA01<br>**Promoting Chemistry to the Public: Popularising Chemistry**<br>Chew Hee Ng<br>*International Medical University, Malaysia* |
| **1420 – 1440** | PAA02<br>**Fingerprinting Polymeric Paints: Training and Certification Courses for Non-Chemists**<br>Chin Han Chan<br>*Universiti Teknologi MARA, Malaysia* |
| **1440 – 1500** | PAA03<br>**The International Chemistry Olympiad – The Malaysian Experience**<br>Sharifuddin Md Zain<br>*Universiti Malaya, Malaysia* |
| **1500 – 1520** | PAA04<br>**Enhancing the Science, Technology and Innovation Talent in Secondary Schools**<br>Yang Farina Abdul Aziz<br>Universiti Kebangsaan Malaysia, Malaysia |
| **1520 – 1540** | PAA05<br>**Closing the Gap between Science and Society: A Science Outreach Project on Biomembranes for High School Students** |

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| | Elena von Hoff<br>*Georg-August-University Göttingen, Germany* |
| **1540 – 1600** | PAA06<br>**Special Exhibition Entitled "HIKARI — The Wonder of Light" Held at the National Museum of Nature and Science, Japan**<br>Fumitaka Wakabayashi<br>*National Museum of Nature and Science, Japan* |
| **1600 – 1630** | Refreshments |
| **1630 – 1650** | PAA07<br>**Designing laboratory experiments for Indian National Chemistry Olympiad programme: A Challenging Exercise**<br>Swapna Narvekar<br>*Homi Bhabha Centre for Science Education (TIFR), India* |
| **1650 – 1710** | PAA08<br>**Conveyer Activities in Chemistry for Public Events**<br>Denis Zhilin<br>*Polytechnical Museum, Russia* |
| | **Technical Session:**<br>**Chemical Research** |
| | **Venue: Hall A** |
| **1710 – 1730** | CHR01<br>**Modifications of PLA/kenaf fiber Bio-composites Using Bleaching Treatment**<br>Nor Azowa Ibrahim<br>*Universiti Putra Malaysia, Malaysia* |
| **1730 – 1750** | CHR02<br>**Portable Electrochemistry Etching: The Making of Metal Bookmarks**<br>Wei-Chih Lin<br>*Kaohsiung Municipal Kaohsiung Senior High School, Taiwan* |
| **1750 – 1810** | CHR03<br>**New Designed Monosaccharide?s Epimeric Diagram (Chart) Using Monosaccharides Barcode**<br>Nader Noroozi Pesyan<br>*Urmia University, Iran* |

| **Wednesday, August 17, 2016** | |
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| **Technical Session:** | |
| **Teaching and Learning of Chemistry at the Secondary Level** | |
| **Venue: Hall A** | |
| **Chairman** | **Dr Nur Jahan Ahmad**<br>**SEAMEO RECSAM, Malaysia** |
| **0800 – 0820** | TLC01<br>**Irresistible a project to introduce cutting edge science and responsible research and innovation in the secondary school classroom**<br>Jan Apotheker<br>*University of Groningen, Netherlands* |
| **0820 – 0840** | TLC02<br>**Modelling-based activities for teaching and learning of electrochemistry** |

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| | **for secondary school students**<br>Mei-Hung Chiu<br>*National Taiwan Normal University, Taiwan* |
| **0840 – 0900** | TLC03<br>**Challenges in Chemistry Education in High Schools in India**<br>Uday Maitra<br>*Indian Institute of Science, India* |
| **0900 – 1000** | **Global Lunch of IUPAC Interactive Electronic Isotopic Periodic Table and Supporting Resources** |
| **1000 – 1030** | Refreshments |
| **Chairman:** | **Prof Datin Dr Zuriati Zakaria**<br>**Universiti Teknologi Malaysia, Malaysia** |
| **1030 – 1115** | Plenary Lecture 4<br>**Models of Life Long Learning Professional Development of Teachers**<br>Rachel Mamlok-Naaman<br>*The Weizmann Institute of Science, Israel* |
| **Chairman:** | **Dr. Alvin Chai Lian Kuet**<br>**Agriculture Research Centre Semongok, Malaysia** |
| **1115 – 1200** | Plenary Lecture 5<br>**Globalization of chemistry education: Comparison of K-12 Chemistry Standards across the World**<br>Mei-Hung Chiu<br>*National Taiwan Normal University, Taiwan* |
| **Chairman:** | **Dato' Chang Eng Thuan**<br>**Institut Kimia Malaysia, Malaysia** |
| **1200 – 1245** | Plenary Lecture 6<br>**Motivation and the undergraduate chemistry student**<br>Robert (Bob) Bucat<br>*The University Of Western Australia, Australia* |
| **1300 – 1400** | Lunch |
| **Chairman:** | **Datin Dr Ng Soo Boon**<br>**Ministry of Education, Malaysia** |
| **1400 – 1420** | TLC04<br>**Is a narrative text more interesting and more effective concerning learning than an expository text?**<br>Tim Reschke<br>Duisburg-Essen University, Germany |
| **1420 – 1440** | TLC05<br>**A Brief Critique: Cambridge IGCSE Chemistry versus SPM Chemistry**<br>Weng Kwai Chan<br>*Poi Lam High School, Malaysia* |
| **1440 – 1500** | TLC06<br>**Exploring a Discourse of Inquiry of Chemical Equilibrium in a Thai Secondary Classroom**<br>Nantana Taptamat<br>University of Queensland, Australia |
| **1500 – 1520** | TLC07<br>**Uniqueness or 'Galapagos' Discrepancies in Chemical Terminology used in Local High Schools and that defined globally by IUPAC in the Days toward Globalization** |

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| | Masato M. Ito<br>*Soka University, Japan* |
| **1520 – 1540** | TLC08<br>**Exploring working memory capacity in learning chemistry**<br>Chang Fui Seng<br>*Universiti Sains Malaysia, Malaysia* |
| **1540 – 1600** | TLC09<br>**Effects of Modeling Approach on 11th Grade Students Learning of Electrochemistry**<br>Shiao-Lan Chung<br>*New Taipei Senior High School, Taiwan* |
| **1600 – 1630** | Refreshments |
| **1630 – 1650** | TLC10<br>**Web-based Teaching Materials for Science and Environmental Education in Lower Secondary School**<br>Setsuko Sato<br>*Gifu University, Japan* |
| **1650 – 1710** | TLC11<br>**High School Students Awareness of the Mole Concept: Students Know What, not Why or How**<br>Hyeoksoon Kwon<br>*Cheongju National University of Education, Korea* |
| **1710 – 1730** | TLC12<br>**Employing Nanoscience Activities to Enhance Students Attitude towards Chemistry Lessons among Upper Secondary School Students: A Malaysian Perspective**<br>Chua Kah Heng<br>*Universiti Sains Malaysia, Malaysia* |
| **1730 – 1750** | TLC13<br>**Effectiveness of Virtual Laboratory (Vlab) Compared to Physical Laboratory (PLab) in the Topic of Salt Chemistry Form 4**<br>Murugan Mini Ratamun<br>*Universiti Kebangsaan Malaysia, Malaysia* |
| **1750 – 1810** | TLC14<br>**The effect of STEM integrated teaching of chemistry on secondary students' understanding about manufactured of substance in industry, problem solving ability and reasoning skills**<br>Shobana Chandrasekaran<br>*Universiti Sains Malaysia, Malaysia* |
| **1810 – 1830** | TLC15<br>**Avogadro's constant and Avogadro's number: myths and misconceptions**<br>João Oliveira<br>*Univ. of Aveiro and CESAM, Portugal* |
| **1830 - 1850** | TLC16<br>**Causes of students' difficulties in understanding verbal statements and verbal reasoning: students' interactions in reaching logical conclusions**<br>Naledi Jele<br>*North-West University, South Africa* |

| Thursday, August 18, 2016 | |
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| **Technical Session: New technologies and innovations in chemistry education including web-based, multimedia and e-learning** | |
| **Venue: Hall A** | |
| **Chairman** | **Assoc Prof Dr Sharon Teh Geok Bee**<br>**Tunku Abdul Rahman University College, Malaysia** |
| **0900 – 0930** | NTI01-Keynote Lecture 1<br>**Psychology as a Basic Science and STEM Discipline**<br>Quek Ai-Hwa<br>HELP University, Malaysia |
| **0930 – 1000** | NTI02-Keynote Lecture 2<br>**Innovative Design of Chemistry Experiments for MOOC General Chemistry-An Advanced Placement**<br>Qiang Li<br>Tsinghua University |
| **1000 – 1030** | Refreshments |
| **1030 – 1050** | NTI03<br>**Go Go Giwas Chemistry: Chemistry Learning in a Series of Indigenous 3D Animations**<br>Li-Yu Fu<br>National Tsing Hua University, Taiwan |
| **1050 – 1110** | NTI04<br>**Using Online Videos to Teach Organic Chemistry Laboratory Techniques**<br>**Horace Luong**<br>University of Manitoba |
| **1110 – 1130** | NTI05<br>**Teaching General Chemistry through Distance Education and in an Online Learning Environment: Opportunities and Challenges**<br>Charisse Reyes<br>*University of the Philippines Open University* |
| **Technical Session: Teaching and Learning of Chemistry at the secondary level** | |
| **Venue: Hall A** | |
| **1130 – 1150** | TLC17<br>**Comparison of chemistry curricula at secondary schools in Portuguese speaking countries**<br>Maria Teresa Gomes<br>*University of Aveiro, Portugal* |
| **1150 – 1210** | TLC18<br>**Embedding multiple modes of representation in chemistry writing task**<br>Nilavathi Balasundram<br>*Universiti Sains Malaysia, Malaysia* |
| **1210 – 1230** | TLC19<br>**Malaysian Millennial Students? Implicit Preferences of Cross-National Chemistry Teachers**<br>Si Zhe Lim<br>*University of Southampton Malaysia Campus, Malaysia* |
| **1230 – 1250** | TLC20<br>**Implicit Teacher-Gender Bias in Chemistry Education: A Cross-Sectional Study of Malaysian High School Students**<br>Minh Chjiat Isabelle Wong<br>*SMK Dato' Jaafar, Malaysia* |

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| **1250 – 1310** | TLC21<br>**Work Examples: a Resource for Learning How to Solve Problem**<br>Rihab Angawi<br>King Abdul-aziz University, Saudi Arabia |
| **1300 – 1400** | Lunch |
| **Technical Session:<br>Pedagogy and other teaching and learning methodology and techniques** | |
| **Venue: Hall A** | |
| **Chairman** | **Assoc Prof Dr Juan Joon Ching<br>Universiti Malaya, Malaysia** |
| **1400 – 1420** | POT01<br>**A Research Based Design for Teaching Phases of Matter and Heat to Visually Impaired Students**<br>Mustafa Sozbilir<br>*Atatürk University, Turkey* |
| **1420 – 1440** | POT02<br>**Ethnochemistry and Ethnomedicine of ancient Papua New Guineans and their use in motivating students in Secondary Schools and Universities in PNG**<br>Basil Marasinghe<br>*Solomon Islands National University, Solomon Islands* |
| **1440 – 1500** | POT03<br>**Adapting the POGIL Method for Indian Organic Chemistry Classes**<br>Kelly Butler<br>*Chestnut Hill College, United States* |
| **1500 – 1520** | POT04<br>**Development of Self Analytical Rubric for Mole Concept and Solution Concentration**<br>Sheau Huey Chong<br>*Tunku Abdul Rahman University College, Malaysia* |
| **1520 – 1540** | POT05<br>**Using Student Generated Digital Images in Laboratory Experiments to Improve Quality of Observations**<br>Eric Villeneuve<br>*Tompson Rivers University, Canada* |
| **1540 – 1600** | POT06<br>**Differentiated Learning Using Tiered Lesson In Inorganic Chemistry**<br>Frederick Tadifa<br>*DMMMSU SLUC, Philippines* |
| **1600 – 1630** | Refreshments |
| **1630 – 1700** | POT07<br>**Identification of student learning processes in local and remote laboratory settings**<br>Mauro Mocerino<br>*Curtin University, Australia* |
| **1700 – 1720** | POT08<br>**Students expressed their understanding using various types of gestures and they were noticed typically to shift from talk-gesture-talk while expressing their understanding**<br>Suziyana Hassim<br>*Universiti Sains Malaysia, Malaysia* |

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| **1720 – 1740** | POT09<br>**Why can electron keep moving? Primitive questions in Chemistry class**<br>Hitoshi Watarai<br>*Osaka University, Japan* |
| **1740 – 1800** | POT10<br>**Perceptions of the Process Oriented Guided Inquiry Learning (POGIL) environment among Qatari high school chemistry students**<br>Sheila Qureshi<br>*Weill Cornell Medicine, Qatar* |

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| **Saturday, August 20, 2016** | |
| **Technical Session:**<br>**Career and Professional Codes in Chemistry** | |
| **Venue: Hall A** | |
| **Chairman** | **Dr Malarvili Ramalingam**<br>**Jabatan Kimia, Malaysia** |
| **0900 – 0920** | CPC01<br>**Development of a Global Chemists? Code of Ethics**<br>Kabrena Rodda<br>*Pacific Northwest National Laboratory, USA* |
| **0920 – 0940** | CPC02<br>**Exploring Self-efficacy and Procrastination Scales in Education and Career**<br>Quek Ai-Hwa<br>*HELP University, Malaysia* |
| **0940 – 1000** | CPC03<br>**Drug Discovery and Development: Bridging the World through Professional Development**<br>Shamsun Khan<br>*East West University, Bangladesh* |
| **1000 – 1030** | Refreshments |
| **1030 – 1100** | CPC04 – Keynote Lecture<br>**Regulating the Professional Practice of Chemistry in Malaysia**<br>Chang Hon Fong<br>*Institut Kimia Malaysia, Malaysia* |
| **1100 – 1120** | CPC05<br>**Enhancing learning in the laboratory: Identifying and promoting best practice in the professional development of teaching assistants**<br>Mauro Mocerino<br>*Curtin University, Australia* |
| **Technical Session:**<br>**General Chemistry** | |
| **Venue: Hall A** | |
| **1120 – 1140** | GEC01<br>**Liquid Chromatographic Tandem Mass Spectrometer Method for the Determination of Common Drugs of Abuse and an Approach in Evaluating Dried Blood Stain (DBS) Sample Stability for Forensic Toxicology Cases in Malaysia**<br>Fathiah Ahmad Zubaidi |

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| | *Jabatan Kimia Malaysia, Malaysia* |
| **1140 – 1200** | GEC02<br>**Discrimination between Basmati and Non-Basmati Rice Using Stable Isotope Ratio and Chemometric Analyses**<br>Azharuddin Abd Aziz<br>*Jabatan Kimia Malaysia, Malaysia* |
| **1200 – 1220** | GEC03<br>**Harnessing the solar energy in extracting essential oil for community based perfumery and aromatherapy**<br>Agnes Pesimo<br>*Partido State University, Philippines* |
| **1220 – 1240** | GEC04<br>**Physicochemical properties of used cooking oil and its extraction efficiency for $Cu^{2+}$ ions from aqueous solutions**<br>Siu Hua Chang<br>*Universiti Teknologi MARA, Malaysia* |
| **1240 – 1300** | **Closing Ceremony**<br>Closing Address<br>**Datuk Dr Soon Ting Kueh**<br>Chairman, ICCE 2016 National Organising Committee<br><br>Welcome to ICCE 2018 Sydney, Australia<br>**Dr Siegbert Schmid**<br>Chair, ICCE 2018 Organising Committee |
| **1300 – 1400** | End of ICCE 2016/Lunch |

| Tuesday, August 16, 2016 | |
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| **Symposium:**<br>**Chemical Weapons Convention (CWC) & Chemical Safety and Security (CSS)** | |
| **Venue: Meeting Room 2&3** | |
| **Chairman:** | **Prof Datin Dr Zuriati Zakaria**<br>***Universiti Teknologi Malaysia, Malaysia*** |
| **1400 – 1430** | CWC01 – Keynote Lecture<br>**The Intersection of Chemistry and Disarmament**<br>Jonathan F Forman<br>*Organisation for the Prohibition of Chemical Weapons, Netherlands* |
| **1430 – 1500** | CWC02 – Keynote Lecture<br>**Emerging Chemical Weapons Convention (CWC) Compliance by Promoting Responsible Science and Chemical Ethics**<br>Kabrena E Rodda<br>*Pacific Northwest National Laboratory, USA* |
| **1500 – 1530** | CSS01 – Keynote Lecture<br>**Chemical Laboratory Safety and Security: A Guide to Developing Standard Operating Procedures**<br>Mark C Cesa<br>*International Union of Pure and Applied Chemistry, USA* |
| **1530 – 1600** | CSS02 – Keynote Lecture<br>**A Three-Legged Stool: IUPAC and OPCW Working Together to Promote Responsible Science and Security**<br>Peter G Mahaffy<br>*The King's University College, Canada* |
| **1600 – 1630** | Refreshments |
| **1630 – 1700** | CSS03 – Keynote Lecture<br>**Responsible Science: Advancing Chemical Safety & Security (CSS) Implementation in Iraq and Kenya**<br>Kabrena E Rodda<br>*Pacific Northwest National Laboratory, USA* |
| **1700 - 1730** | CSS04- Keynote Lecture<br>**Chemical Safety Management from OSH Regulator Perspective**<br>Majahar Abd Rahman<br>*Department of Occupational Safety and Health, Malaysia* |
| **1730 – 1750** | CSS05<br>**Integration of Responsible Research and Innovation into Cutting-edge Science Topics through Student-curated Exhibits**<br>Sevil Akaygun<br>*Bogazici University, Turkey* |
| **1750 – 1810** | CSS06<br>**Tolerable Levels of Risk in Chemistry Education**<br>Denis Zhilin<br>*Polytechnical Museum Moscow, Russia* |

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| **Wednesday, August 17, 2016** | |
| **Technical Session:**<br>**Laboratory Classes in Chemistry Education including Microscale Chemistry** | |
| **Venue: Meeting Room 2&3** | |
| **Chairman** | **Dr Ng Kim Hooi**<br>**TAR Universiti College, Malaysia** |
| **0800 – 0830** | LCC01 – Keynote Lecture<br>**Small Scale Organic Chemistry: My Experiences in Asia**<br>**Prof Supawan Tantayanon**<br>*Chulalongkorn University, Thailand* |
| **0830 – 0850** | LCC02<br>**A Practical Procedure to Conceptualise some Terms and Factors Associated with Chemical Equilibrium among Undergraduates in a Ghanaian University**<br>Ruby Hanson<br>*University of Education, Ghana* |
| **0900 - 1000** | **Global Lunch of IUPAC Interactive Electronic Isotopic Periodic Table and Supporting Resources** Venue: Hall A |
| **1000 – 1030** | Refreshments |
| **1030 – 1115** | Plenary Lecture 4 *Venue: Hall A* |
| **1115 – 1200** | Plenary Lecture 5 *Venue: Hall A* |
| **1200 – 1245** | Plenary Lecture 6 *Venue: Hall A* |
| **1300 – 1400** | Lunch |
| **Chairman** | **Assoc Prof Dr Nor Azowa Ibrahim**<br>**Universiti Putra Malaysia, Malaysia** |
| **1400 – 1420** | LCC03<br>**Enhancing Practical Aptitude & Interest in Chemistry by Incorporating Interactive Analytical Experiments**<br>Fai Kait Chong<br>*Universiti Teknologi Petronas, Malaysia* |
| **1420 – 1440** | LCC04<br>**Use of Tablet in College Chemistry Experiment: Developing Experimental Program providing image of the Walden's inversion**<br>Akira Ikuo<br>*Tokyo Gakugei University, Japan* |
| **Technical Session:**<br>**Research in Chemistry Education** | |
| **Venue: Meeting Room 2&3** | |
| **1440 – 1500** | RCE01<br>**Undergraduate Chemistry Research in Art Forensics**<br>Ian Butler<br>*McGill University, Canada* |
| **1500 – 1520** | RCE02<br>**Chemical Education Research as an Academic Field in Chinese Mainland: Structural Status and Challenges**<br>ZhU YuJun<br>*Beijing Normal University, China* |

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| **1520 – 1540** | RCE03<br>**Describing the Behavior of Gases: A Phenomenographic Approach to Students Understanding Patterns and Experience Variation**<br>Ranie Abia<br>*University of the East, De La Salle University, Philippines* |
| **1540 – 1600** | RCE04<br>**Learning Strategies of First-year University Chemistry Students in Sweden and Germany**<br>Felix Ho<br>*Uppsala University, Sweden* |
| **1600 – 1630** | Refreshments |
| **1630 – 1650** | RCE05<br>**Investigating the Efficacy of Flipped Learning to Promote Student Engagement and Achievement**<br>Siegbert Schmid<br>*The University of Sydney, Australia* |
| **1650 – 1710** | RCE06<br>**Gender Dependence of Guessing in Multiple Choice Questions with Negative Marking in a Physical Chemistry Course in a B.Sc. Programme**<br>Marie N K de Zoysa<br>*The Open University of Sri Lanka, Sri Lanka* |
| **1710 – 1730** | RCE07<br>**The Development of a Two-tier Diagnostic Instrument to Explore Students' Understanding of Stereochemistry Concepts in Undergraduate Chemistry classes**<br>Venkat Rao Vishnumolakala<br>*Curtin University, Australia* |
| **1730 – 1750** | RCE08<br>**The Research of Best Opportunity in Chemistry Education**<br>Zhigang Hu<br>*Fujian Normal University, China* |
| **1750 – 1810** | RCE09<br>**Broadening Participation in College-level Chemistry: A Longitudinal Study of the Impact of Curricular and Pedagogy Reform**<br>Dorian Canelas<br>*Duke University, United States* |
| **1810 – 1830** | RCE10<br>**Laboratory exercises that are more than just "hands on"**<br>Felix Ho<br>*Uppsala University, Sweden* |
| **1830 – 1850** | RCE11<br>**Transforming assessment practice through evidencing and benchmarking student learning outcomes in Chemistry**<br>Siegbert Schmid<br>*The University of Sydney, Australia* |

| Thursday, August 18, 2016<br>Technical Session:<br>Tertiary chemistry education & lifelong learning | |
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| Venue: Meeting Room 2&3 | |
| **Chairman** | **Dr. Mageswary Karpudewan**<br>**Universiti Sains Malaysia, Malaysia** |
| **0900 – 0920** | TCE01<br>**College Students' Reflection on the Uncritical Inference Test Activity in Organic Chemistry Course**<br>Poh Wai Chia<br>*Universiti Malaysia Terengganu, Malaysia* |
| **0920 – 0940** | TCE02<br>**Engaging undergraduate students with chemistry: Experiences with the National Initiative on Undergraduate Science programme in chemistry**<br>Savita Ladage<br>*Homi Bhabha Centre for Science Education (TIFR), India* |
| **0940 – 1000** | TCE03<br>**'Celebrating' chemistry within constraints! The inception and evolution of a departmental publication for student engagement and chemistry popularization**<br>Tejas Joshi<br>*University College London Institute of Education, India* |
| **1000 – 1030** | Refreshments |
| **1030 – 1050** | TCE04<br>**Assessing the prior knowledge and thinking skills of students related to glassware in an undergraduate practical chemistry course; A preliminary study**<br>Dusantha Alwis<br>*The Open University of Sri Lanka, Sri Lanka* |
| **1050 – 1110** | TCE05<br>**Embedding Career Development Skills into the Chemistry Curriculum**<br>Matthew Almond<br>*University of Reading, United Kingdom* |
| **1110 – 1130** | TCE06<br>**Students' understanding of scientific models and modeling process in science: A preliminary case study with undergraduates of Bachelors Degree Programme at the Open University of Sri Lanka**<br>Ramani Tantrigoda<br>*The Open University of Sri Lanka, Sri Lanka* |
| **1130 – 1150** | TCE07<br>**Interactive Lessons In Inorganic Chemistry**<br>Jan Kenneth Laguardia<br>*DMMMSU-SLUC, Philippines* |
| **1150 – 1210** | TCE08<br>**Adaptation of a Malay Version of Chemistry Self-Concept Questionnaire**<br>Adeline Leong<br>*Universiti Malaysia Sabah, Malaysia* |

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| **1210 – 1230** | TCE09<br>**Deep Controversies in the Teaching of Chemistry**<br>Tony Wright<br>*The University of Queensland, Australia* |
| **1230 – 1300** | TCE10<br>**Phases of matter and phase transitions: difficulties and misconceptions among undergraduate chemistry students**<br>Liliana Mammino<br>*University of Venda, South Africa* |
| **1300 – 1400** | Lunch |
| **Technical Session:<br>Green and Environmental Chemistry Education** | |
| **Venue: Meeting Room 2&3** | |
| **Chairman** | **Prof Dr Zanariah Abdullah<br>Universiti Malaya, Malaysia** |
| **1400 – 1430** | GEC01 – Keynote Lecture 1<br>**Green & Sustainable Chemistry Education in Japan**<br>Prof Kazuko Ogino<br>*Tohoku University, Japan* |
| **1430 – 1500** | GEC02 – Keynote Lecture 2<br>**Importance of Green Chemistry in the Synthesis of Dendrimers and Heterocyclic Compounds**<br>Prof Md. Wahab Khan<br>*Bangladesh University of Engineering & Technology (BUET), Bangladesh* |
| **1500 – 1520** | GEC03<br>**Destruction of Chemical waste in the student Laboratory electrochemical method**<br>Ilhami Ceyhun<br>*Atatürk University, Turkey* |
| **1520 – 1540** | GEC04<br>**Adsorptive Membrane For Biodiesel Purification**<br>Saiful Saiful<br>Syiah Kuala University, Indonesia |
| **1540 – 1600** | GEC05<br>**Green chemistry in undergraduate education: Organocatalysis in practical laboratory classes**<br>Thomas Logothetis<br>*University of Southampton, United Kingdom* |
| **1600 – 1630** | Refreshments |
| **1630 – 1700** | GEC06 – Keynote Lecture 3<br>**Malaysian experiences of integrating green chemistry in Secondary Schools and Chemistry Teacher Education Program: An exemplary of Integrating Green Chemistry into Education**<br>Mageswary Karpudewan<br>*Universiti Sains Malaysia, Malaysia* |

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| **1700 – 1720** | GEC07<br>**Environmental Knowledge, Environmental Affective, Environmental Behaviour, and Environmental Skills in Predicting Environmental Literacy Among Form 4 Students in Sabah, Malaysia**<br>Anuthra Sirisena<br>*Universiti Malaysia Sabah, Malaysia* |
| **1720 – 1740** | GEC08<br>**Nanotechnology in the Context of an Education for Sustainable Development: Perspectives for a Curricular School Innovation**<br>Janina Dege<br>Georg-August-University Göttingen, Germany |
| **1740 – 1800** | GEC09<br>**Green Chemistry infused with STEM (GREENSTEM) curriculum in educating the secondary school students on rate of reaction, scientific reasoning skills and transformative experiences**<br>Komala Devi Thanimalai<br>*Universiti Sains Malaysia , Malaysia* |
| **1800 – 1820** | GEC10<br>**Green Strategies for learning organic chemistry: Odorless,Visible, Touchable, Playable experiential-learning**<br>Hsu-Mao Liao<br>*Senior High School, Taiwan* |

| **Saturday, August 20, 2016** | |
|---|---|
| **Technical Session:**<br>**Chemistry/Science Teacher Education including Pre & In-service** | |
| **Venue: Meeting Room 2&3** | |
| **Chairman** | Assoc. Prof. Dr. Chan Chin Han<br>Universiti Teknologi MARA, Malaysia |
| **0900 – 0920** | CTE01<br>**Associating of Misconceptions: Temperature and Ability of Heat Conductivity**<br>Halis Türker Balayd'n<br>*Recep Tayyip Erdoğan University, Turkey* |
| **0920 – 0940** | CTE02<br>**The value of small scale chemistry kits to support socio-economic transformation in South-African schools through onsite workshops**<br>Maria Du Toit<br>*North West University, South Africa* |
| **0940 – 1000** | CTE03<br>**Korean Science Teachers? Volunteer Activity of Teacher Training in Timor-Leste**<br>JaeYoung Han<br>*Chungbuk National University, Korea* |
| **1000 – 1030** | Refreshments |

| Technical Session:<br>Tertiary chemistry education & lifelong learning | |
|---|---|
| Venue: Meeting Room 2&3 | |
| **1030 – 1050** | TCE11<br>**The usefulness of practical work to establish the concept of chemical reaction types in general chemistry**<br>Maria Du Toit<br>*North West University, South Africa* |
| **1050 – 1110** | TCE12<br>**The importance of teaching writing skills in Chemistry as a key transforming agent**<br>Jean Du Toit<br>*North West University, South Africa* |
| **1110 – 1130** | TCE13<br>**An inquiry-based practical curriculum for organic chemistry as preparation for industry and postgraduate research**<br>Lynne Pilcher<br>*University of Pretoria, South Africa* |
| **1130 – 1150** | TCE14<br>**Designing of a post graduate programme in Green Technology with green chemistry perspectives An overview**<br>Radha Jayaram<br>*Institute of Chemical Technology, India* |
| **1150 – 1210** | TCE15<br>**Enhancing Students? Understanding in Organic Chemistry by Participative Learning**<br>Lakshmy Ravishankar<br>*KET's V.G.Vaze college of Arts, Science & Commerce, India* |
| **1240 – 1300** | Closing Ceremony Venue: Hall A |
| **1300 – 1400** | Lunch/ End of Sessions |

**Technical Session:**
**Chemical Research**

CHR04P
**The Thermal Stability and the Crystal Structure of Long-Chained Porphyrin Derivatives and Cobalt Complexes**
Supakorn Boonyuen
*Department of Chemistry, Thailand*

CHR05P
**A Simple and Efficient Catalyst for the Synthesis of Substituted Thiazoles**
**Periketi Raghuveera Chary**
*Dream India Schools, India*

CHR06P
**Closed Bipolar Electrochemistry: A New Application for Molecular Information Processing**
Hongyun Liu
*Beijing Normal University, China*

CHR07P
**Determination of the Positional Isomers of Triacylglycerols Using High Performance Liquid Chromatography Coupled with Triple Quadrupole Mass Spectrometry**
Yin Mee Thang
*The Weizmann Institute of Science, Israel*

CHR08P
**Determination of the positional isomers of triacylglycerols using high performance liquid chromatography coupled with triple quadrupole mass spectrometry**
Yin Mee Thang
*Sime Darby Research Sdn Bhd, Malaysia*

**Technical Session:**
**General Chemistry**

GEC05P
**Cytotoxicity to Artemia Salina L. of Philippine Marine Sponge Extracts**
Chona Gelani
*MSU-IIT, Philippines*

GEC06P
**Like Dissolves Like: A Guided Inquiry Experiment for the Solubility of Naphthalene and Acetic Acid Varies in Toluene or Water**
Chiung-Lan Wang
*National Taiwan Normal University, Graduate Institute of Science Education, Taiwan*

**Technical Session:**
**Green and Environmental Chemistry Education**

GEC11P
**The CCS (Carbon Capture and Storage) in Teaching Applications**
Chang Ming Chuan
*National Wu-Ling Senior High School, Taiwan*

GEC12P
**A Circulation System for Adsorbing and Detecting Heavy Metal Ions**
Hsiao Chien Liu
*Chemical Educational Resource Center (CERC) of Taiwan, Taiwan*

**Technical Session:**
**Laboratory Classes in Chemistry Education Including Microscale Chemistry**

LCC05P
**Radiochemical Experiment Using Mineral Deposit of Tamagawa Hot Spring**
Ayaka Yanase
*Tokyo Gakugei University, Japan*

LCC06P
**A System Approach to Practical Works on Chemistry: A New Method of Control**
Natalia Morozova
*AESC MSU, Russia*

**Technical Session:**
**Pedagogy and Other Teaching and Learning Methodology and Techniques**

POT11P
**An Activity for Teaching Thermal Insulation Concept to Visually Impaired Students**
Mustafa Sozbilir
*Atatürk University, Turkey*

POT12P
**Project-Based Approach in Pre-Chemistry Education. Way from Science Class to Chemistry.**
Alexander Sigeev
*Kolmogorov Advanced Educational Scientific Centre of Moscow State University, Russia*

POT13P
**Projects Aimed to Continuous Education: Advanced Educational Scientific Center Experience**
Anna Degtyareva
*AESC MSU, Russia*

POT14P
**Organic Molecule 3D Modeling & 3D Printing**
Chang Ya Wen
*National Kaohsiung Normal University, Taiwan*

POT15P
**Teaching Elementary Theoretical Chemistry Using Thinking Maps**
Kok Lai Yim
*Institut Kimia Malaysia, Malaysia*

POT16P
**Inquiry-Based instruction using Student-Developed Home Chemistry Experiment for General Chemistry Laboratory**
Shui-Ping Yang
*National Changhua University of Education, Taiwan*

POT17P
**Development Teaching Kits for DNA Extraction**
Keng-Shiang Huang
*I-Shou University, Taiwan*

**Technical Session:**
**Public Awareness/ Appreciation of Chemistry and International Chemistry Olympiad**

PAA09P
**Report from NICE 2015 and Invitation to NICE 2017**
Masahiro Kamata
*Tokyo Gakugei University, Japan*

| Technical Session:<br>Teaching and Learning of Chemistry at the Secondary Level |
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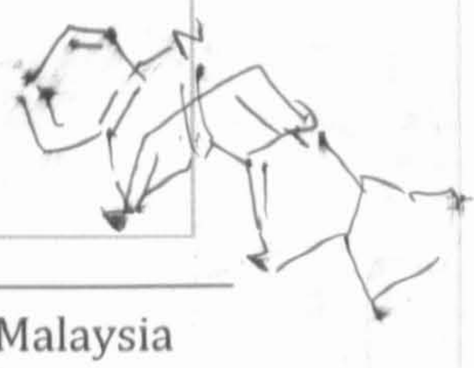
| TLC21P<br>**Which Amino Acid Shows Xanthoprotein Reaction? -Difference in Textbooks of High School Chemistry**<br>Yuki Tomita<br>*Tokyo University of Science Graduate School of Mathematics and Science Education, Japan* |
| TLC22P<br>**Development of a Chemistry Teaching Material: "Color in Japanese History"**<br>Izumi Imai<br>*Toho University, Japan* |
| TLC23P<br>**Development of STEAM Programs Based on Nano-Science for Secondary School**<br>Daehong Jeong<br>*Seoul National University, Korea* |
| TLC24P<br>**E-Learning of National Center for Biotechnology Information (NCBI)**<br>*I-Shou University, Taiwan* |
| **Technical Session:<br>Tertiary Chemistry Education & Lifelong Learning** |
| TCE17P<br>**Development of Experimental Materials for Synthesis of Salicylic Acid from Phenol**<br>Kazunori Satoh<br>*Tokyo University of Science Graduate School of Mathematics and Science Education, Japan* |
| TCE18P<br>**Crib Sheets for First Year GOB Chemistry? Who Wins?**<br>Philip Sharpe<br>*The University of Queensland, Australia* |
| TCE19P<br>**Teaching Model of Chemical Reaction at School: Quantitative Aspect**<br>Elena Bataeva<br>*Intellectual Boarding School, Russia* |

# ISPAC 2016

# Programme

| Tuesday, August 16, 2016 | |
|---|---|
| **0900 – 1000** | Opening Ceremony Venue: Hall A |
| **1000 – 1030** | Refreshments |
| **Chairman:** | **Dr Boey Peng Lim**<br>**Institut Kimia Malaysia, Malaysia** |
| **1030 – 1115** | Plenary Lecture 1<br>**New Aspects in Dipyrrin-Metal Complexes: From Molecular Science to Low Dimensional Molecular Assembles**<br>Ryota Sakamoto<br>*The University of Tokyo, Japan* |
| **1115 – 1200** | Plenary Lecture 2<br>**Synthesis of Structurally Well-Controlled Star and Hyperbranched Polymers by Organotellurium-mediated Radical Polymerization**<br>Shigeru Yamago<br>*Kyoto University, Japan* |
| **Chairman:** | **Prof Mansor Ahmad**<br>**Universiti Putra Malaysia, Malaysia** |
| **1200 – 1230** | Keynote Lecture 1<br>**Supramolecular Approach to Photo/Electro-Active Molecular Systems: Light Harvesting and Charge Separation**<br>Joe Otsuki<br>*Nihon University, Japan* |
| **1230 - 1300** | Keynote Lecture 2<br>**Applications of bioimaging devices for cell transplantation and tumorigenic analysis in regenerative medicine**<br>Daisuke Onoshima<br>*Nagoya University, Japan* |
| **1300 – 1400** | Lunch |
| | **Session:**<br>**Organic Chemistry** |
| | **Venue: Meeting Room 8&9** |
| **Chairman:** | **Mr Chang Hon Fong,**<br>**Institut Kimia Malaysia, Malaysia** |
| **1400 – 1420** | ORC01<br>**Decarboxylative Route to Organofluorine Compounds**<br>Hideki Amii<br>*Gunma Univaesity, Japan* |
| **1420 – 1440** | ORC02<br>**Enantioselective Hydrogenation of Heterocyclic Arenes**<br>Ryoichi Kuwano<br>*Kyushu Univesity, Japan* |
| **1440 – 1500** | ORC03<br>**Thiocarbonyls: Key Functional Groups to New Reactions and Molecular Fluorescence**<br>Toshiaki Murai<br>*Gifu University, Japan* |
| **1500 – 1520** | ORC04<br>**Heterobiaryl with winding-vine-shaped molecular asymmetry**<br>Atsunori Mori<br>*Kobe University, Japan* |



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| **1520 - 1540** | ORC05<br>**Reactivity of Unsymmetrical Diborane(4) toward Multiple Bond**<br>Makoto Yamashita<br>*Chuo University, Japan* |
| **1600 – 1630** | **Refreshment** |
| | **Session:**<br>**Organic Chemistry** |
| | **Venue: Meeting Room 8&9** |
| **1630 – 1650** | ORC06<br>**A Multiply Interlocked Assembly of Porphyrin and Phthalocyanine**<br>Yasuyuki Yamada<br>*Nagoya University, Japan* |
| **1650 – 1710** | ORC07<br>**Oxidative Coupling Reactions of Acene Derivatives**<br>Zhiyi Song<br>*Hokkaido University, Japan* |
| **1710 - 1730** | ORC08<br>**Enantioselective Synthesis of Planar-Chiral Ferrocene Derivatives via Pt-Catalyzed Cycloisomerization**<br>Ninna Uno<br>*Waseda University, Japan* |
| **1730 – 1750** | ORC09<br>**Cross-Coupling Reactions by Cooperative Pd/Cu Catalysis**<br>Kazuhiko Semba<br>*Kyoto University, Japan* |
| **1750 – 1810** | ORC10<br>**Conformational entropy in Claisen rearrangement studied by a new kinetic approach**<br>Yosuke Sumiya<br>*Hokkaido University, Japan* |
| **1810 – 1830** | ORC11<br>**Photocatalytic C–N bond Formation at Room Temperature**<br>Yuna Morioka<br>*Nagoya University, Japan* |

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| | **Wednesday, August 17, 2016** |
| | **Session:**<br>**Organic Chemistry** |
| | **Venue: Meeting Room 8&9** |
| **Chairman:** | **Assoc. Prof. Dr. Chan Chin Han**<br>**Universiti Teknologi Malaysia, Malaysia** |
| **0900 – 0920** | ORC12<br>**Catalytic C-H Activation/Borylation of Helicenes**<br>David Necas<br>*Charles University in Prague, Czech* |

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| **0920 - 0940** | ORC13<br>**Transformation of Organic Molecules on Titanium**<br>Tamotsu Takahashi<br>*Hokkaido University, Japan* |
| **0940 – 1000** | ORC14<br>**Effect of Electron Withdrawing Substituents on Emission Intensity of Furocoumarin and Azo coumarin Derivatives**<br>Norfatirah Muhamad Sarih<br>*Universiti Malaya, Malaysia* |
| **1000 – 1030** | Refreshments |
| **1030 – 1045** | ISPAC Opening Session |
| **Chairman:** | **Datuk Dr Soon Ting Kueh**<br>**Institut Kimia Malaysia, Malaysia** |
| **1045 – 1130** | Plenary Lecture 3<br>**Magical Power of d-Block Transition Metals – Past, Present and Future**<br>Ei-ichi Negishi<br>Purdue University, USA |
| **Chairman:** | **Prof Dr Lau Seng**<br>**Universiti Malaysia Sarawak, Malaysia** |
| **1130 – 1200** | Keynote Lecture 3<br>**Boron or Aluminium in Cage-shaped Organic Ligands for Tunable Catalysts**<br>Makoto Yasuda<br>*Osaka University, Japan* |
| **1200 – 1230** | Keynote Lecture 4<br>**Organocatalytic Enantioselective Allylation of Aldehydes and Its Synthetic Applications**<br>Martin Kotora<br>*Charles University in Prague, Czech Republic* |
| **1230 – 1300** | Keynote Lecture 5<br>**Recent Advances in the Analysis of the Glyceride Positional Distribution of Fatty Acids in Palm Oil (or any Oil or Fat) by NMR Spectroscopy**<br>Soon Ng<br>*University of Malaya, Malaysia* |
| **1300 – 1400** | Lunch |
| | **Session:**<br>**Organic Synthesis** |
| | **Venue: Meeting Room 8&9** |
| **Chairman:** | **Dr. Alvin Chai Lian Kuet**<br>**Agriculture Research Centre, Sarawak** |
| **1400 – 1420** | ORS01<br>**Synthesis of Sterically Locked Tetrapyrrole Chromophores toward Elucidation of Phytochrome Functions**<br>Yutaka Ukaji<br>*Kanazawa University, Japan* |

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| **1420 – 1440** | ORS02<br>**Direct Catalytic Chemoselective □-Amination of Acylpyrazoles:A Concise Route to Unnatural □-Amino Acid Derivatives**<br>Takashi Ohshima<br>*Kyushu Univesity, Japan* |
| **1440 - 1500** | ORS03<br>**Enantioselective Synthesis of Planar-Chiral Zirconocenes by Asymmetric Ring-Closing Metathesis and Their Application in ZACA Reaction**<br>Masamichi Ogasawara<br>*Tokushima University, Japan* |
| **1500 – 1520** | ORS04<br>**Total Synthesis of furofuran lignans: sesamin and hedyotol A**<br>Toshiyuki Kan<br>*University of Shizuoka, Japan* |
| **1520 – 1540** | ORS05<br>**Construction of All-Carbon Quaternary Stereogenic Centers through Chiral Naphthol-NHC-Cu(I)-catalyzed C–H Allylic Alkylations**<br>Hirohisa Ohmiya<br>*Hokkaido University, Japan* |
| **1540 – 1600** | ORS06<br>**Catalytic and Enantioselective Synthesis of Chiral Substituted Tribenzoheteropins by the Intermolecular Cycloaddition**<br>Takanori Shibata<br>*Waseda University, Japan* |
| **1600 – 1630** | Refreshments |
| | **Session:**<br>**Organic Chemistry** |
| | **Venue: Meeting Room 8&9** |
| **1630 – 1650** | ORS07<br>**Stable Five-membered Metallacycloallenes And Their Reactivity**<br>Noriyuki Suzuki<br>*Sophia University, Japan* |
| **1650 – 1710** | ORS08<br>**Total Syntheses of Architecturally Complex N-Heterocyclic Natural Products**<br>Hidetoshi Tokuyama<br>*Tohoku University, Japan* |
| **1710 – 1730** | ORS09<br>**Gold- and Copper-Catalyzed Skeletal Rearrangement of O-Propargylic Oximes**<br>Itaru Nakamura<br>*Tohoku University, Japan* |
| **1730 - 1750** | ORS10<br>**Preparation of Aminobiphenols and Benzimidazoles from Polyhalogenated Nitroarenes and Aryl Grignard Reagents via Magnesium-mediated Benzidine-type Rearrangement**<br>Takeshi Hata<br>*Tokyo Institute of Technology, Japan* |

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| **1750 – 1810** | ORS11<br>**Highly Fluorescent Aza[7]helicenes: Facile Synthesis, Structures and Optical Properties**<br>Takashi Otani<br>*Anan Technical High School, Japan* |
| **1810 - 1830** | ORS12<br>**Synthesis of 9,9'-Disubstituted Fluorene Derivatives by Iridium Catalyst Initiated by C-C Bond Cleavage of Biphenylenes**<br>Hideaki Takano<br>*Waseda University, Japan* |

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| **Thursday, August 18, 2016** | |
| **Session:**<br>**Organic Synthesis** | |
| **Venue: Meeting Room 8&9** | |
| **Chairman:** | **Assoc Prof Dr Juan Joon Ching**<br>**Universiti Malaya, Malaysia** |
| **0900 – 0920** | ORS13<br>**Synthesis and properties of azacorannulenes**<br>Hiroki Yokoi<br>*Nagoya University, Japan* |
| **0920 – 0940** | ORS14<br>**A new one-pot aminotriazine annulation onto cyclic amidines and guanidines under microwave irradiation**<br>Felicia Lim<br>*Monash University Malaysia, Malaysia* |
| **0940 – 1000** | ORS15<br>**Synthesis of Kojic Acid Derivatives As Dye Sensitized Solar Cell**<br>Carolynne Sie<br>*Universiti Malaysia Sarawak, Malaysia* |
| **1000 – 1030** | Refreshments |
| | **Session:**<br>**Physical Chemistry** |
| **1030 – 1050** | PHC01<br>**Theoretical study of inhomogeneous hydrogen bonds at water/graphene interface**<br>Takayoshi Ishimoto<br>*Kyushu Univesity, Japan* |
| **1050 – 1110** | PHC02<br>**Ab initio study of photo-isomerization reaction dynamics**<br>Tetsuya Taketsugu<br>*Hokkaido University, Japan* |
| **1110- 1130** | PHC03<br>**Transition States of Spin-State Crossing Reactions**<br>Jun-ya Hasegawa<br>*Hokkaido University, Japan* |
| **1130 – 1150** | PHC04<br>**Switching and Memory of Macromolecular Helicity in Poly(biphenylylacetylene)s in the Solid State and Application to Elution Order Switchable Chiral Stationary Phase for HPLC** |

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| | Katsuhiro Maeda<br>*Kanazawa University, Japan* |
| **1150 – 1210** | PHC05<br>**Direct Power Charge and Discharge using the Glycolic Acid/Oxalic Acid Redox Couple toward Carbon-Neutral Energy Circulation**<br>Miho Yamauchi<br>*Kyushu Univesity, Japan* |
| **1210 – 1230** | PHC06<br>**Highly Active and Reusable Supported Catalytic Systems: Batch & Flow**<br>Yoichi Yamada<br>*RIKEN, Japan* |
| **1230 – 1250** | PHC07<br>**Anomalous Water Molecules and Mechanistic Effects of Water Nanotube Clusters Confined to Molecular Porous Crystals**<br>Makoto Tadokoro<br>*Tokyo University of Science, Japan* |
| **1300 – 1400** | Lunch |
| **Chairman:** | **Assoc. Prof. Dr. Mas Rosemal Hakim Mas Haris**<br>**Universiti Sains Malaysia, Malaysia** |
| **1400 – 1420** | PHC08<br>**Photo-controllable Organic Superconducting Transistor**<br>Masayuki Suda<br>*Institute for Molecular Science, Japan* |
| **1420 – 1440** | PHC09<br>**Macroscopically Working Artificial Molecular Motor: Steady and Autonomous Conversion of Light Energy to Mechanical Motion with Dissipative Self-Organization**<br>Yoshiyuki Kageyama<br>*Hokkaido University, Japan* |
| **1440 – 1500** | PHC10<br>**Diamond magnetometry based on an electrically detected magnetic resonance**<br>Hiroki Morishita<br>*Kyoto University, Japan* |
| **1500 – 1520** | PHC11<br>**Photoswitching of intramolecular donor-acceptor interaction and invisible modulation of the fluorescence**<br>Tetsuya Nakagawa<br>*Yokohama National University, Japan* |
| **1520 – 1540** | PHC12<br>**Important effect of the surface defect level on CdSe quantum dot for photocatalytic hydrogen evolution**<br>Kana Sawaguchi<br>*Hokkaido University, Japan* |
| **1540 – 1600** | PHC13<br>**Ratiometric Detection of Intracellular Sodium Ion with Benzophosphole P-oxide Based Fluorescent Probe**<br>Hiroaki Ogasawara<br>*Nagoya University, Japan* |
| **1600 – 1630** | Refreshments/ End of Conference |

| Tuesday, August 16, 2016 | | |
|---|---|---|
| **0900 – 1000** | Opening Ceremony | Venue: Hall A |
| **1000 – 1030** | Refreshments | |
| **1030 – 1115** | Plenary Lecture 1 | Venue: Meeting Room 8 & 9 |
| **1115 – 1200** | Plenary Lecture 2 | Venue: Meeting Room 8 & 9 |
| **1200 – 1230** | Keynote Lecture 1 | Venue: Meeting Room 8 & 9 |
| **1230 - 1300** | Keynote Lecture 2 | Venue: Meeting Room 8 & 9 |
| **1300 – 1400** | Lunch | |
| **Session: Coordination Chemistry** | | |
| **Venue: Meeting Room 4** | | |
| **Chairman:** | **Prof. Datin Dr. Zuriati Zakaria**<br>**Universiti Teknologi Malaysia, Malaysia** | |
| **1400 – 1420** | COC01<br>**C-F and C-H Bond Activations under Organocatalysis: Enantioselective trichloromethylation and Alkenylation of MBH-fluorides based on silicon-assisted C-F activation**<br>Norio Shibata<br>*Nagoya Institute of Technology, Japan* | |
| **1420 – 1440** | COC02<br>**Regioselective Hydrophosphination Reaction of a C≡C Triple Bond Catalyzed by an Iron Complex and Isolation of Intermediate Complexes**<br>Masumi Itazaki<br>*Osaka City University, Japan* | |
| **1440 – 1500** | COC03<br>**Interface complexation of fluorescence carbon dots with targeted analyte in water and its potential as sensing probe**<br>Sing Muk Ng<br>Swinburne University of Technology Sarawak Campus, Malaysia | |
| **1500 – 1520** | COC04<br>**Toward Functional Mimics of Nitrogenase: Synthesis, Structures, and Reactivities of New Molecular Metal-Sulfur Clusters**<br>Yasuhiro Ohki<br>*Nagoya University, Japan* | |
| **1520 - 1540** | COC05<br>**Synthesis of Planar Chiral Phosphine-Olefin Ligands Based on a Transition Metal Scaffold and Application in Asymmetric Catalysis**<br>Ken Kamikawa<br>*Osaka Prefecture University, Japan* | |
| **1540 - 1600** | COC06<br>**Chromic Behavior of Hydrazone-Metal Complexes Induced by Protonation-Deprotonation on the Ligands**<br>Kiyohiko Nakajima<br>Aichi Univesity of Education, Japan | |
| **1600 – 1630** | **Refreshment** | |

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| | **Session:**<br>**Coordination Chemistry** |
| | **Venue: Meeting Room 4** |
| **1630 – 1650** | COC07<br>**Silycon and Germanium Analogs of Carbyne Complexes: Synthesis, Structure, and Some Reactions**<br>Hisako Hashimoto<br>*Tohoku University, Japan* |
| **1650 – 1710** | COC08<br>**Coordination Chemistry of Cations and Anions for Polyoxovanadate Inorganic Cages**<br>Yoshihito Hayashi<br>*Kanazawa University, Japan* |
| **1710 - 1730** | COC09<br>**Pd-phenanthroline Complexes Catalyzed Direct Arylation of Thiocarbonyl Compounds**<br>Takayuki Yamauchi<br>*University of Bristol, UK* |
| **1730 – 1750** | COC10<br>**Ruthenium Catalysts Supported by a Xanthene-Based Bis(silyl) Chelate Ligand for C–H Silylation of Diarylalkynes**<br>*Takashi Komuro*<br>*Tohoku University, Japan* |
| **1750 – 1810** | COC11<br>**Cyclopentadienyl Iridium Complex a Powerful Catalyst for Organic Transformations**<br>Shuhei Kusumoto<br>*The University of Tokyo, Japan* |
| **1810 - 1830** | COC12<br>**Photochemical and Electrochemical CO2 Reduction Catalyzed by Ruthenium Complexes: Factors for Determining CO/HCOO− Selectivity**<br>Hitoshi Ishida<br>Kitasato University, Japan |
| **1830** | End of Sessions |

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| **Wednesday, August 17, 2016** | |
| **Session:** **Coordination Chemistry** | |
| **Venue: Meeting Room 4** | |
| **Chairman:** | **Dato' Dr. Yew Chong Hooi** **Institut Kimia Malaysia, Malaysia** |
| **0900 – 0920** | COC13 **Cleavage and Formation of Molecular Dinitrogen in a Single System Assisted by Molybdenum Complexes Bearing Ferrocenyldiphosphine** Yoshiaki Tanabe *The University of Tokyo, Japan* |
| **0920 - 0940** | COC14 **Visible-Light-Responsive Photoredox Catalysis of Polyoxometalates** Kosuke Suzuki *The University of Tokyo, Japan* |
| **Session:** **Inorganic Chemistry** | |
| **Venue: Meeting Room 4** | |
| **0940 – 1000** | INC01 **Tracing the geographical origin of cow milk by analysis of spectroscopic data using chemometric methods** Sharifuddin M.Zain *University of Malaya, Malaysia* |
| **1000 – 1030** | Refreshments |
| **1030 – 1045** | ISPAC Opening Session |
| **1045 – 1130** | Plenary Lecture 3 — Venue: Meeting Room 8 & 9 |
| **1130 – 1200** | Keynote Lecture 3 — Venue: Meeting Room 8 & 9 |
| **1200 – 1230** | Keynote Lecture 4 — Venue: Meeting Room 8 & 9 |
| **1230 – 1300** | Keynote Lecture 5 — Venue: Meeting Room 8 & 9 |
| **1300 – 1400** | Lunch |
| **Session:** **Inorganic Chemistry** | |
| **Venue: Meeting Room 4** | |
| **Chairman:** | **Prof Dr Yang Farina Abdul Aziz** **Universiti Kebangsaan Malaysia, Malaysia** |
| **1400 – 1420** | INC02 **Spectroscopic, X-Ray Crystallographic And Cytotoxicity Studies Of Thiosemicarbazone Schiff Bases With Their Cd(II) and Zn(II) Complexes** Ming Yueh Tan *Tunku Abdul Rahman University College, Malaysia* |
| **1420 – 1440** | INC03 **Direct measurements of defect structure in TiO2 single crystal** Hiroko Ariga *Hokkaido University, Japan* |
| **1440 - 1500** | INC04 **Structural characterization, ROS-induction and proteasome inhibition of Metal (II) complexes of N2- and N2O2-ligands** Cheang Wei Chan *Universiti Malaya, Malaysia* |

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|---|---|
| **1500 – 1520** | INC05<br>**Transition Metal-Catalyzed Transformation of Oligosilanes without Si-Si Bond Cleavage**<br>Kanno ken-ichiro<br>*Gunma Univaesity, Japan* |
| **1520 – 1540** | INC06<br>**An Iridium-Catalyzed Reductive Approach to Nitrones from N-Hydroxiamides**<br>Takaaki Sato<br>*Keio University, Japan* |
| **1540 – 1600** | INC07<br>**Single metal dispersion on an oxide single crystal surface: effect of premodification with a mercapto compound on metal dispersion**<br>Satoru Takakusagi<br>*Hokkaido University, Japan* |
| **1600 – 1630** | Refreshments |
| | **Session:**<br>**Inorganic Chemistry** |
| | **Venue: Meeting Room 4** |
| **1630 – 1650** | INC08<br>**Copper-Catalyzed Formation of Sulfur-Nitrogen Bonds via Oxidative Coupling of Thiols with Amines**<br>Nobukazu Taniguchi<br>*Fukushima Medical University, Japan* |
| **1650 – 1710** | INC09<br>**Role of the Acid-Base Sites in Catalytic Reactions at the Water/CeO2(111) Interface: First-Principles Simulations**<br>Akira Nakayama<br>*Hokkaido University, Japan* |
| **1710 – 1730** | INC10<br>**Curious Behaviors of Photogenerated e- and h+ in Anatase and Rutile TiO2 Powders**<br>Akira Yamakata<br>*Toyota Technological Institute, Japan* |
| **1730 - 1750** | INC11<br>**Borylation Reactions with a Masked Diboron under Copper Catalysis**<br>Hiroto Yoshida<br>*Hiroshima University, Japan* |
| **1750 – 1810** | INC12<br>**Ring Expansion of Zircona- and Hafnacyclopentadienes to 9-Membered Zircona- and Hafnacycles**<br>Haijun Li<br>*Hokkaido University, Japan* |
| **1810** | End of Sessions |

| Thursday, August 18, 2016<br>Session:<br>Inorganic Chemistry | |
|---|---|
| Venue: Meeting Room 4 | |
| **Chairman:** | **Dr. Linda Ng Yian Yian**<br>**Institut Kimia Malaysia, Malaysia** |
| **0900 – 0920** | INC13<br>**Photocatalytic properties of perovskite-type oxynitride solid solutions**<br>Hideki Kato<br>*Tohoku University, Japan* |
| **0920 – 0940** | INC14<br>**Surface Synthesis of graphene nanoribbons by conformation-controlled mechanism**<br>Nakae Takahiro<br>*Kyoto University, Japan* |
| **0940 – 1000** | INC15<br>**Palladium-Catalyzed Coordination Copolymerization of Polar Monomers: Catalyst Improvement to Achieve Challenging Polymerizations**<br>Shingo Ito<br>*The University of Tokyo, Japan* |
| **1000 – 1030** | Refreshments |
| **1030 – 1050** | INC16<br>**Fabrication of Thin Films and Josephson Junctions on MgB2 and SmFeAs(O,F) using Molecular Beam Epitaxy**<br>Masahito Sakoda<br>*Tokyo University of Agriculture and Technology, Japan* |
| **1050 – 1110** | INC17<br>**Structural & Biological Studies Of Thiophene Thiosemicarbazone Complexes**<br>Yang Farina Abdul Aziz<br>*Universiti Kebangsaan Malaysia, Malaysia* |
| **1110- 1130** | INC18<br>**Highly Selective Calcium Sensor for Determination of Plant Macronutrients in Precision Agriculture Application**<br>Ahmad Nazmi Bin Rosli<br>*University of Malaya, Malaysia* |
| **1130 – 1150** | INC19<br>**Magnano Beads: Synthesis and Adsorption of Lead(II) from Aqueous solution**<br>Nurfatyha Rusydah Mohamad Shahdad<br>*Universiti Malaysia Sarawak, Sarawak* |
| **1150** | End of Sessions |

| Tuesday, August 16, 2016 | | |
|---|---|---|
| **0900 – 1000** | Opening Ceremony | Venue: Hall A |
| **1000 – 1030** | Refreshments | |
| **1030 – 1115** | Opening Ceremony | Venue: Meeting Room 8 & 9 |
| **1115 – 1200** | Refreshments | |
| **1200 – 1230** | Plenary Lecture 1 | Venue: Meeting Room 8 & 9 |
| **1230 - 1300** | Plenary Lecture 2 | Venue: Meeting Room 8 & 9 |
| **1300 – 1400** | Lunch | |
| **Session: Bio-organic Chemistry** | | |
| **Venue: Meeting Room 5** | | |
| **Chairman:** | **Prof Dr Yang Farina Abdul Aziz**<br>**Universiti Kebangsaan Malaysia, Malaysia** | |
| **1400 – 1420** | BOC01<br>**Tailor-made design of protein-based probes to visualize and analyze single-molecule motion of RNAs in living cells**<br>Hideaki Yoshimura<br>*The University of Tokyo, Japan* | |
| **1420 – 1440** | BOC02<br>**In Vivo Crystal Engineering for Design of Protein Crystals in the Development of Solid Biomaterials**<br>Satoshi Abe<br>*Tokyo Institute of Technology, Japan* | |
| **1440 – 1500** | BOC03<br>**Nanomechanical DNA Origami Devices as Single-Molecular Sensors for Biomolecules**<br>Akinori Kuzuya<br>*Kansai University, Japan* | |
| **1500 – 1520** | BOC04<br>**An Innovative Green Biocomposites for the Controlled-Release of Fertilizer and Pesticide**<br>Mas Rosemal Hakim Mas Haris<br>*Universiti Sains Malaysia, Malaysia* | |
| **1520 - 1540** | BOC05<br>**Model Studies of Acetyl CoA Synthase: A key Player of Carbon Fixation**<br>Tsuyoshi Matsumoto<br>*Nagoya University, Japan* | |
| **1600 – 1630** | **Refreshment** | |
| **Session: Polymer Chemistry** | | |
| **Venue: Meeting Room 5** | | |
| **1630 – 1650** | POC01<br>**Direct Observation of Syntheses and Properties of Plastic and Rubber Materials by Electron Spin Resonance (ESR) Spectroscopy**<br>Atsushi Kajiwara<br>*Nara University of Education, Japan* | |

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|---|---|
| **1650 – 1710** | POC02<br>**Thermo- and Light-Responsive Monofunctional Polymers**<br>Eriko Sato<br>*Osaka City University, Japan* |
| **1710 - 1730** | POC03<br>**Single-Molecule Imaging of a Polymer and a Macromolecular Machine**<br>Ken-ichi Shinohara<br>*Japan Advances Institute of Science and Technology , Japan* |
| **1730 – 1750** | **POC04**<br>**Preparation and Modification of Water-Blown Porous Biodegradable Polyurethane Foams with Palm Oil-Based Polyester Polyol**<br>Ng Wei Seng<br>*University of Malaya, Malaysia* |
| **1750 – 1810** | **POC05**<br>**Design and Synthesis of (Imido)vanadium(V)-Alkylidene Complexes as Efficient Catalysts for Ring-Opening Metathesis Polymerization (ROMP) of Cyclic Olefins**<br>Kotohiro Nomura<br>*Tokyo Metropolitan University, Japan* |
| **1810 – 1830** | **POC06**<br>**Dehydrocoupling Polymerization and Oligomerization of Silafluorene Promoted by Group 10 Transition Metals**<br>Makoto Tanabe<br>*Tokyo Institute of Technology, Japan* |

| **Wednesday, August 17, 2016** | |
|---|---|
| **Session:**<br>**Polymer Chemistry** | |
| **Venue: Meeting Room 5** | |
| **Chairman:** | **Prof. Dr. Mansor Ahmad**<br>**Universiti Putra Malaysia, Malaysia** |
| **0900 – 0920** | POC07<br>**Polymer Synthesis Using the Cyclopolymerization of Dienes and Trienes by Diimine Pd Complex**<br>Kenya Motokuni<br>*Friedrich-Schiller-Universität Jena, Japan* |
| **0920 - 0940** | POC08<br>**Libraries of block-copolymer/enzyme complexes for protein fingerprinting: Toward markerless and noninvasive stem cell evaluation**<br>Shunsuke Tomita<br>*National Institute of Advanced Industrial Science and Technology, Japan* |
| **0940 – 1000** | POC09<br>**Bio-inspired Multi-block Amphiphiles Functioning in Membrane and Crystal**<br>Takahiro Muraoka<br>*Tokyo Institute of Technology, Japan* |

# ISPAC2016-Meeting Room 5

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|---|---|---|
| **1000 – 1030** | Refreshments | |
| **1030 – 1045** | ISPAC Opening Session | Venue: Meeting Room 8 & 9 |
| **1045 – 1130** | Plenary Lecture 3 | Venue: Meeting Room 8 & 9 |
| **1130 – 1200** | Keynote Lecture 3 | Venue: Meeting Room 8 & 9 |
| **1200 – 1230** | Keynote Lecture 4 | Venue: Meeting Room 8 & 9 |
| **1230 – 1300** | Keynote Lecture 5 | Venue: Meeting Room 8 & 9 |
| **1300 – 1400** | Lunch | |
| **Session: Polymer Chemistry** | | |
| **Venue: Meeting Room 5** | | |
| **Chairman:** | **Dr. Choo Yeun Mun**<br>**Universiti Malaya, Malaysia** | |
| **1400 – 1420** | POC10<br>**Resistance of Pt-Skin/PtCo Alloy to CO Poisoning in Polymer Electrolyte Fuel Cell Anode: A First-Principles Study**<br>Nobuki Ozawa<br>*Tohoku University, Japan* | |
| **1420 – 1440** | POC11<br>**Helix Induction to Polymers Using Circularly Polarized Light**<br>Tamaki Nakano<br>*Hokkkaido University, Japan* | |
| **1440 - 1500** | POC12<br>**Synthesis and Monomer Reactivity Ratios of 3-(Trimethoxysilyl)propyl methacrylate-co-N-vinyl-2-pyrrolidone Copolymer**<br>Mansor Ahmad<br>*Universiti Putra Malaysia, Malaysia* | |
| **1500 – 1520** | POC13<br>**Facile hydrothermal conversion of natural polymer into carbon dots for environmental sensing applications**<br>Phyllis Nishi<br>*Swinburne University of Technology Sarawak Campus, Malaysia* | |
| **1520 – 1540** | POC14<br>**Design and Synthesis of Novel π-Conjugated Polymers for Organic Devices**<br>Itaru Osaka<br>*RIKEN, Japan* | |
| **1540 – 1600** | POC15<br>**Quantification of Hole Transfer Yield form Organic Lead Iodide Perovskite to Polymer Hole Transport Layer**<br>Akinori Saeki<br>*Osaka University, Japan* | |
| **1600 – 1630** | Refreshments | |
| **Session: Food & Medicinal Chemistry** | | |
| **Venue: Meeting Room 5** | | |
| **1630 – 1650** | FMC01<br>**Food chemistry for the care food development**<br>Kyoko Mori<br>*Japan comprehensive technology institute, Japan* | |

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| **1650 – 1710** | FMC02<br>**Chemistry in Food Science - A role of β-1-3,1-4 glucan in Molecular Nutritional Science**<br>Yoshikazu Shoji<br>*Japan Comprehensive Technology Institute, Japan* |
| **1710 – 1730** | FMC03<br>**Structure-Property Relationship of Pharmaceutical Pseudopolymorph**<br>Yuda Prasetya Nugraha<br>*Tokyo Institute of Technology, Japan* |
| **1730 - 1750** | FMC04<br>**Antitumour copper drug: in vitro and in vivo efficacy and toxicity studies**<br>Chew Hee Ng<br>*International Medical University, Malaysia* |
| **1750 – 1810** | FMC05<br>**Development of Aminosulfonate Ester-based Self-immolative linker for Application in Prodrug**<br>Kengo Hanaya<br>*Keio University, Japan* |

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| **Thursday, August 18, 2016** | |
| **Session:**<br>**Environmental Chemistry** | |
| **Venue: Meeting Room 5** | |
| **Chairman:** | **Dr. Saravanan Nagalingam**<br>**Institut Kimia Malaysia, Malaysia** |
| **0900 – 0920** | ENC01<br>**Environmental pollution from Pharmaceutical Industrial Effluents in Bangladesh: Monitoring and Mitigation**<br>Jasim Ahmad<br>*FACS, Bangladesh* |
| **0920 – 0940** | ENC02<br>**Assessment of heavy metals in fishes from the Baleh River, Sarawak, Malaysia**<br>Hui Ping Chai<br>Universiti Malaysia Sarawak, Malaysia |
| **0940 – 1000** | ENC03<br>**Assessment of Heavy Metals in Fishes from Murum Hydroelectric Reservoir**<br>Ru Sheong Wong<br>*Universiti Malaysia Sarawak, Malaysia* |
| **1000 – 1030** | Refreshments |
| **1030 – 1050** | ENC04<br>**Electrocoagulation of textile wastewater using a novel reactor design**<br>Zuriati Zakaria<br>*Universiti Teknologi Malaysia, Malaysia* |

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| **1050 – 1110** | ENC05<br>**Assessment of Heavy Metal in Fishes from the Rajang River at Pelagus Area**<br>Wei Sing Lai<br>Universiti Malaysia Sarawak, Malaysia |
| **1110- 1130** | ENC06<br>**Degradation of lambda-cyhalothrin in humid-tropical vegetable and soils**<br>Alvin Lian Kuet Chai<br>*Agriculture Research Centre Semongok, Malaysia* |
| **1130 – 1150** | ENC07<br>**Application of Photo-Fenton Treatment on the degradation of sago wastewater**<br>Wong Soon Pang<br>*Universiti Malaysia Sarawak, Malaysia* |
| **1150 – 1210** | ENC08<br>**Water Quality of Sarawak Rivers with Various Water Quality Index**<br>Elaine Szewei Tai<br>*Universiti Malaysia Sarawak, Malaysia* |
| **1210 – 1230** | ENC09<br>**Assessment of Heavy Metals in Fishes of the Baram River, Sarawak, Malaysia**<br>Mugilan Rajendran<br>*Universiti Malaysia Sarawak, Malaysia* |
| **1230 – 1250** | ENC10<br>**The treatment of stabilized landfill leachate (SLL) using physicochemical treatment coupled with UV-activated persulfate and peroxymonosulfate oxidation**<br>Ahmad Razali Ishak<br>*Universiti Malaya, Malaysia* |
| **1300 – 1400** | Lunch/ End of Sessions |

| Environmental Chemistry |
|---|
| ENC11P<br>**Photocatalytic Degradation of 2,4,5-Trichlorophenoxyacetic Acid: Response Surface Approach and Mechanism Study**<br>Kian Mun Lee<br>*University of Malaya, Malaysia* |
| **Physical Chemistry** |
| PHC14P<br>**Catalytic activity of Bronsted and Lewis on Bio-oil compound**<br>Juan Joon Ching<br>*University of Malaya, Malaysia* |
| PHC15P<br>**Hybrid TiO2 Species Decorated Reduced Graphene Oxide Film for Efficient Dye-Sensitized Solar Cell (DSSC)**<br>Chin Wei Lai<br>*University of Malaya , Malaysia* |
| **Polymer Chemistry** |
| POC16P<br>**Preparation And Optimization Of Carboxymethyl Sago STARCH (CMSS) ? Acid Hydrogel**<br>Nur Fattima' Al-Zahara' Tuan Mohamood<br>*Universiti Putra Malaysia, Malaysia* |
| POC17P<br>**Preparation and characterization of irradiated carboxymethyl sago starch/chitosan hydrogel and its potential for removal of heavy metal**<br>Norhazlin Zainuddin<br>*Universiti Putra Malaysia, Malaysia* |

# LabAsia BORNEO Show DIRECTORY



## Discovering New Business Opportunities for Science & Laboratory in **SARAWAK**

Held in Conjunction with 24th IUPAC International Conference on Chemistry Education (ICCE) 2016

## 17 – 18 AUGUST 2016

Borneo Convention Centre Kuching, Kuching, Sarawak, Malaysia

www.lab-asia.com

# MESSAGE FROM ORGANISER

First of all, I would like to express warmest welcome to all valued exhibitors, partners, visitors, delegates and members of the media. Thank you for joining and supporting LabAsia Borneo, the roadshow series of the ASEAN leading laboratory exhibitions, LabAsia.

This year, we are glad to once again be in partnership with Institut Kimia Malaysia (IKM), to organise LabAsia roadshow Borneo series, in conjunction with 24th IUPAC International Conference on Chemistry Education (ICCE) 2016.

Being one of the ASEAN leading laboratory exhibitions, LabAsia has been contributing to the growth and innovation of the laboratory & scientific industries in Southeast Asia region and beyond, generating vast business opportunities for exhibitors and visitors. As Borneo has wealthy natural resources and much room for growth in various industries, such as biotechnology, F&B process, chemical, electronic, oil & gas, research & development and many more, there is a huge demand for scientist & laboratory technologies advancement. Therefore, we are bringing the core of LabAsia to Borneo, opens up opportunities for industry players of scientific & laboratory in Borneo to explore laboratory technologies and to meet potential partners.

To the visitors & delegates, we warmly welcome you to meet the exhibitors for better understanding about the technologies displayed and to build strong networks with the participating companies.

To the participating companies, we hope you have a fruitful experience in LabAsia Borneo 2016.

Thanks.

CP Saw
Managing Director
ECMI ITE Asia Sdn Bhd

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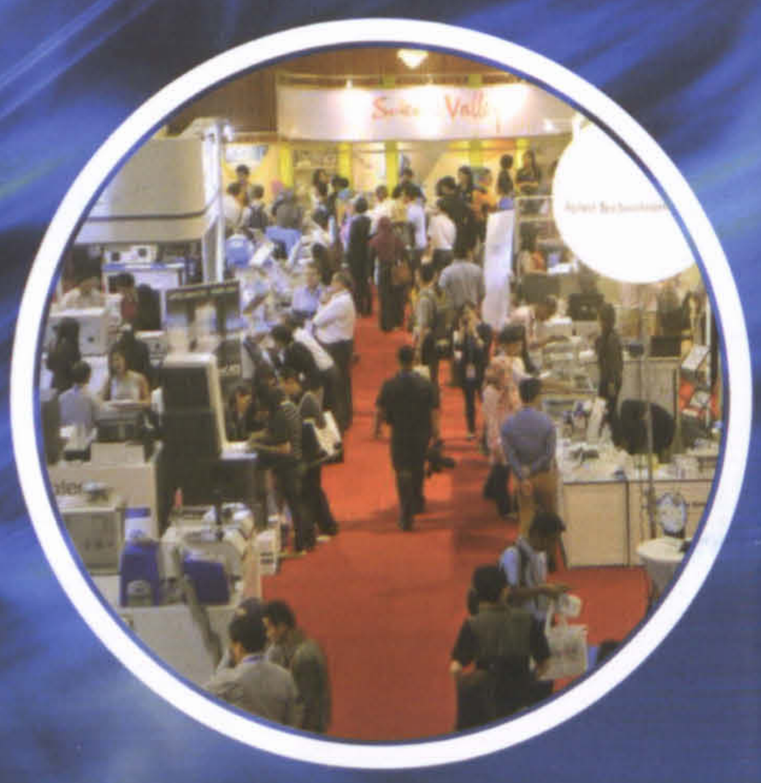

## 3-5 OCTOBER 2017

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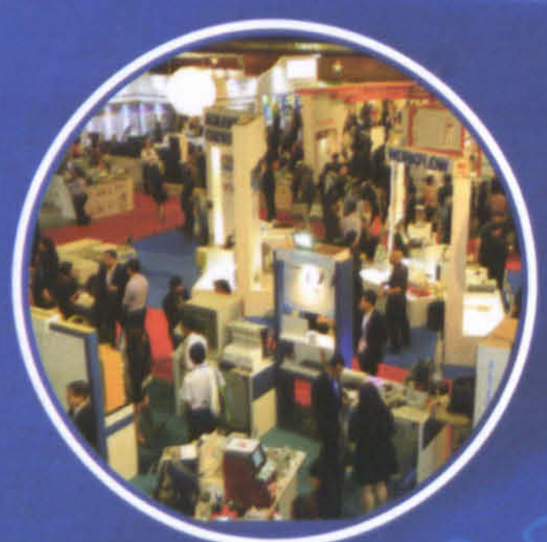

**EVENT HIGHLIGHTS**

- Official Opening Ceremony
- Industry Conferences
- Technical Seminars & Workshops
- One2One Business Meetings
- Lab Asia Career Matching
- Lab Asia Innovation Competition
- University & Educational Tour

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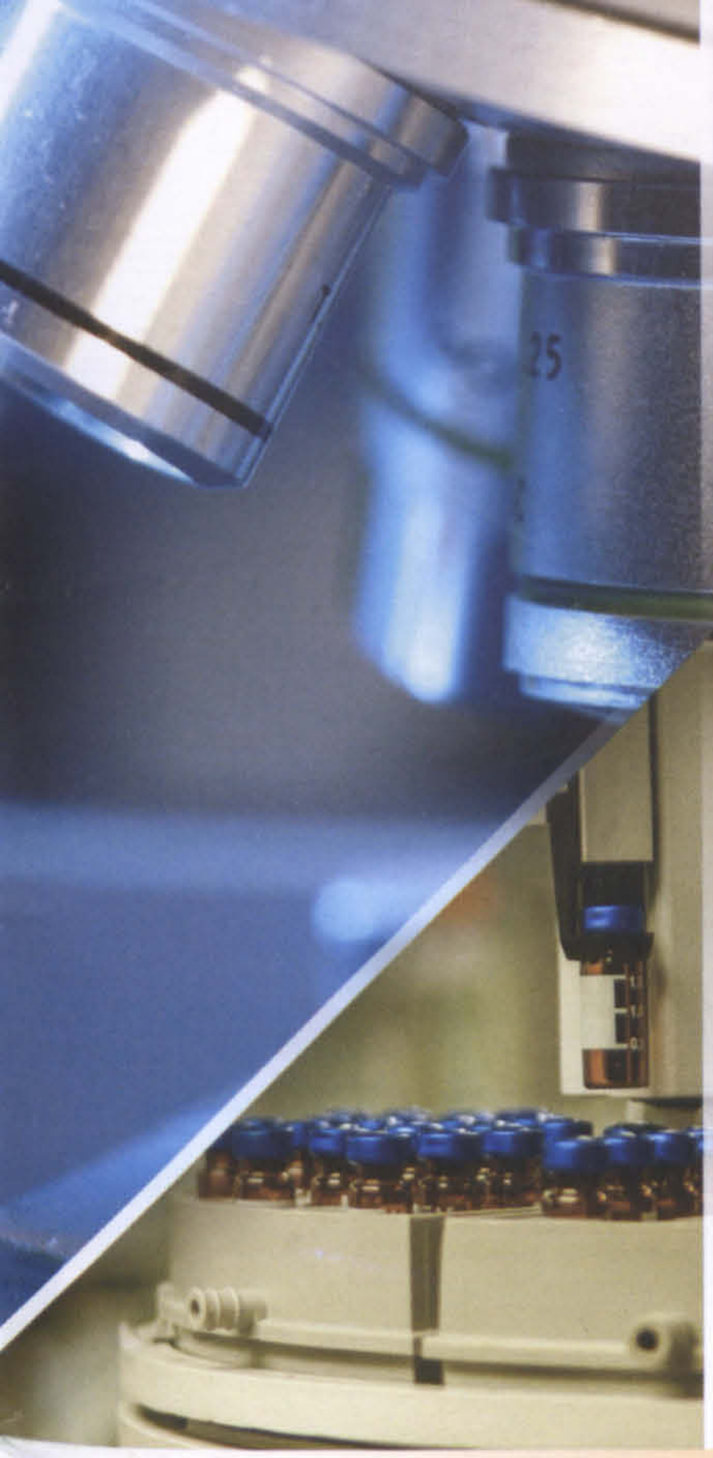

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# *In Appreciation*

Institut Kimia Malaysia (IKM) and the ICCE & ISPAC 2016 National Organising Committee will like to record our sincere appreciation and gratitude to the following for their support and collaboration in making ICCE & ISPAC a success.

- **YAB Datuk Patinggi Tan Sri (Dr) Haji Adenan Bin Haji Satem**
  *Chief Minister of Sarawak*
- **YBhg Datuk Patinggi Tan Sri Alfred Jabu anak Numpang**
  *Science Research Advisor to State Government of Sarawak*
- **YB Datuk Amar Douglas Uggah Embas**
  *Deputy Chief Minister & Minister of Modernisation of Agriculture & Rural Economy Sarawak*
- **YB Datuk Amar Abang Haji Abdul Rahman Zohri bin Tun Abang Haji Openg**
  *Deputy Chief Minister, Minister of Tourism, Arts & Culture and Minister of Housing & Urbanization Sarawak*
- **Dr Mark C Cesa**
  *Immediate Past President, International Union of Pure and Applied Chemistry*
- **Nobel Laureate Prof Ei-ichi Negishi**
- **Prof Tamotsu Takahashi**
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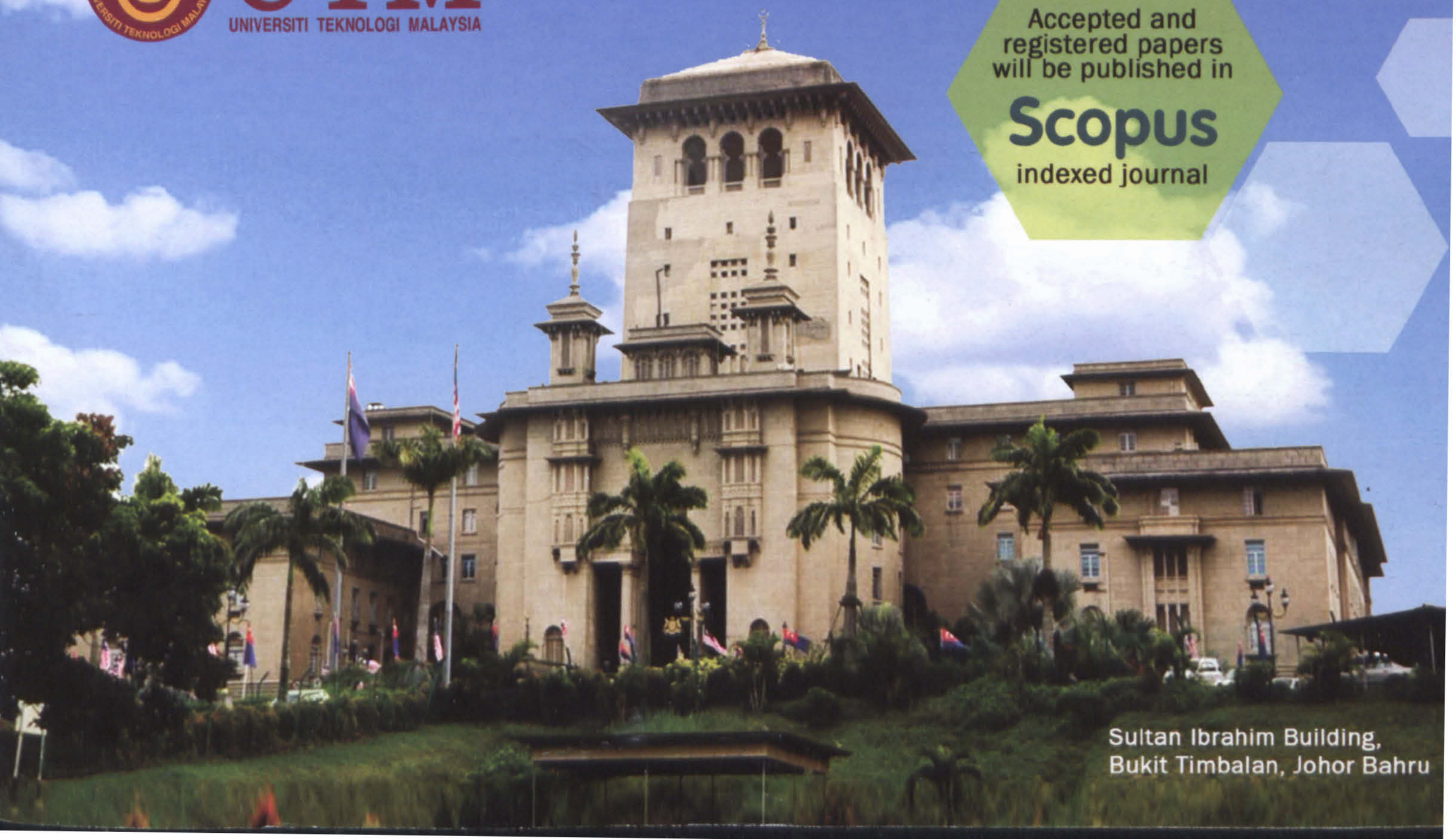

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